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Mayor

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

CITY OF HAMMOND

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Director

PART 70 OPERATING PERMIT RENEWAL

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY**

and

**HAMMOND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
AIR POLLUTION CONTROL DIVISION**

**ExxonMobil Oil Corporation
1527 – 141st Street
Hammond, Indiana 46320**

(herein known as the Permittee) is hereby authorized to operate subject to the conditions contained herein, the source described in Section A (Source Summary) of this permit.

The Permittee must comply with all conditions of this permit. Noncompliance with any provisions of this permit is grounds for enforcement action; permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. Noncompliance with any provision of this permit, except any provision specifically designated as not federally enforceable, constitutes a violation of the Clean Air Act. It shall not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. An emergency does constitute an affirmative defense in an enforcement action provided the Permittee complies with the applicable requirements set forth in Section B, Emergency Provisions.

This permit is issued in accordance with 326 IAC 2 and 40 CFR Part 70 Appendix A and contains the conditions and provisions specified in 326 IAC 2-7 as required by 42 U.S.C. 7401, et. seq. (Clean Air Act as amended by the 1990 Clean Air Act Amendments), 40 CFR Part 70.6, IC 13-15 and IC 13-17.

Operation Permit No.: T089-15418-00233	
Issued By: Original signed by: _____ Paul Dubenetzky, Branch Chief Office of Air Quality	Issuance Date: <u>June 27, 2005</u>
Issued By: Original signed by: _____ Ronald L. Novak, Director Hammond Department of Environmental Management	Expiration Date: <u>June 27, 2010</u>

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Stratospheric Ozone Protection

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SECTION A

SOURCE SUMMARY

This permit is based on information requested by the Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ) and Hammond Department of Environmental Management (HDEM). The information describing the source contained in conditions A.1 through A.3 is descriptive information and does not constitute enforceable conditions. However, the Permittee should be aware that a physical change or a change in the method of operation that may render this descriptive information obsolete or inaccurate may trigger requirements for the Permittee to obtain additional permits or seek modification of this permit pursuant to 326 IAC 2, or change other applicable requirements presented in the permit application.

A.1 General Information [326 IAC 2-7-4(c)] [326 IAC 2-7-5(15)] [326 IAC 2-7-1(22)]

The Permittee owns and operates a stationary Petroleum Bulk Terminal Operation.

Responsible Official:	Midwest Area Manager
Source Address:	1527 – 141 st Street, Hammond, Indiana 46320
Mailing Address:	same
General Source Phone Number:	(219) 933-6051
SIC Code:	5171 - Petroleum Bulk Terminal
County Location:	Lake County
Source Location Status:	Attainment/Unclassifiable for CO, PM10, Lead Primary Nonattainment for SO ₂ , PM _{2.5} Severe Nonattainment for Ozone
Source Status:	Part 70 Permit Program Major Source under PSD and Emission Offset Rules

A.2 Emission Units and Pollution Control Equipment Summary [326 IAC 2-7-4(c)(3)] [326 IAC 2-7-5(15)]

This Stationary source consists of the following permitted emission units and pollution control devices:

- (a) One (1) Tank Truck Loading Operation, identified as LR-1, where gasoline, denatured ethanol, and distillates are bottom-loaded into transport trucks. Displaced hydrocarbon emissions are controlled by a John Zink Carbon Adsorption/Absorption Vapor Recovery Unit (VRU). The loading operation includes five (5) loading bays and has a maximum loading capacity of 144,000 gallons per hour. The loading facility was installed in 1961 and was modified in 1991. The VRU was installed in 1991.
- (b) Four (4) petroleum liquid (gasoline, distillate, or denatured ethanol) storage tanks, identified as tanks No. 116, 154, 155, and 156. Tank specifications are as follows:
 - (1) Storage Tank No. 116 is an open floater tank equipped with a geodesic dome. The floating roof is equipped with a mechanical shoe seal and rim mounted wiper secondary seal. The tank has a maximum capacity of 1,890,000 gallons. The tank was constructed in 1961.
 - (2) Storage Tank No. 154 has an internal floating roof equipped with a mechanical shoe seal and rim mounted wiper secondary seal. The tank has a maximum capacity of 4,987,500 gallons. The tank was constructed in 1951.
 - (3) Storage Tank No. 155 has an internal floating roof equipped with a mechanical shoe seal and rim mounted wiper secondary seal. The tank has a maximum capacity of 5,040,000 gallons. The tank was constructed in 1955.
 - (4) Storage Tank No. 156 has an internal floating roof equipped with a mechanical shoe seal and rim mounted wiper secondary seal. The tank has a maximum capacity of 5,040,000 gallons. The tank was constructed in 1955.

A.3 Specifically Regulated Insignificant Activities [326 IAC 2-7-1(21)] [326 IAC 2-7-4(c)] [326 IAC 2-7-5(15)]

This stationary source also includes the following insignificant activities which are specifically regulated, as defined in 326 IAC 2-7-1(21):

- (a) The following storage tanks with capacities less than or equal to 1,000 gallons and annual throughputs less than 12,000 gallons.
 - (1) Non Taxable Red Dye Diesel Tank A5 is a horizontal fixed roof tank storing distillate dye additive with a maximum design capacity of 250 gallons. The tank was constructed in 1995.
 - (2) Heating Oil Tank O1 is an underground, horizontal fixed roof tank storing No. 2 fuel oil with a maximum design capacity of 1,000 gallons. The tank was constructed in 1961.
 - (3) Heating Oil Tank G1 is an underground, horizontal fixed roof tank storing No. 2 fuel oil with a maximum design capacity of 1,000 gallons. The tank was constructed in 1961.
 - (4) Heating Oil Tank G2 is an underground, horizontal fixed roof tank storing No. 2 fuel oil with a maximum design capacity of 1,000 gallons. The tank was constructed in 1961.
- (b) The following storage tanks which emit less than one (1) ton per year of a single HAP and less than fifteen (15) pounds per day of VOC:
 - (1) Storage Tank No. 37 is a fixed cone roof tank storing wastewater with a maximum design capacity of 84,000 gallons. The tank was constructed in 1971.
 - (2) Storage Tank No. 115 is a fixed cone roof tank storing distillates with a maximum design capacity of 1,617,927 gallons. The tank was constructed in 1961.
 - (3) Storage Tank No. 152 is a fixed cone roof tank storing No. 2 fuel oil with a maximum design capacity of 5,040,000 gallons. The tank was constructed in 1951.
 - (4) Storage Tank No. 153 is a fixed cone roof tank storing diesel RM fuel oil with a maximum design capacity of 5,040,000 gallons. The tank was constructed in 1951.
 - (5) East Ethanol Tank E1 has an internal floating roof and stores denatured ethanol with a maximum design capacity of 30,000 gallons. The tank was constructed in 1982.
 - (6) West Ethanol Tank E2 is a horizontal fixed roof tank storing denatured ethanol with a maximum design capacity of 30,000 gallons. The tank was constructed in 1982.
 - (7) Generic Additive Tank A1 is a horizontal fixed roof tank storing additives with a maximum design capacity of 8,000 gallons. The tank was constructed in 1988.
 - (8) Diesel Additive Tank A2 is a horizontal fixed roof tank storing additives with a maximum design capacity of 8,000 gallons. The tank was constructed in 1991.
 - (9) Mobil Additive Tank A3 is a horizontal fixed roof tank storing additives with a maximum design capacity of 8,000 gallons. The tank was constructed in 1994.
 - (10) Additive Tank A4 is a horizontal fixed roof tank storing additives with a maximum design capacity of 8,000 gallons. The tank was constructed in 1995.
 - (11) Own Use Diesel Tank A6 is a horizontal fixed roof tank storing additives with a maximum design capacity of 6,000 gallons. The tank was constructed in 1994.

- (12) Emergency Overfill Tank B1 is an underground, horizontal fixed roof tank storing transmix with a maximum design capacity of 10,000 gallons. The tank was constructed in 1961.
- (13) Emergency Overfill Tank B2 is an underground, horizontal fixed roof tank storing transmix with a maximum design capacity of 6,000 gallons. The tank was constructed in 1961.
- (14) Emergency Overfill Tank B3 is an underground, horizontal fixed roof tank storing transmix with a maximum design capacity of 1,000 gallons. The tank was constructed in 1961.
- (c) A laboratory as defined in 326 IAC 2-7-1(21)(D).
- (d) Space heaters, process heaters, or boilers using the following fuels. Fuel oil-fired combustion sources with heat input equal to or less than two million (2,000,000) Btu per hour and firing fuel containing less than five-tenths (0.5) percent sulfur by weight.
- (e) A petroleum fuel, other than gasoline, dispensing facility, having a storage capacity of less than or equal to 10,500 gallons, and dispensing less than or equal to 230,000 gallons per month. (Own use fueling ExxonMobil vehicles only).
- (f) Equipment used to collect any material that might be released during a malfunction, process upset, or spill cleanup. The equipment includes: catch tanks, temporary liquid separators, tanks, and fluid handling equipment.

A.4 Part 70 Permit Applicability [326 IAC 2-7-2]

This stationary source is required to have a Part 70 permit by 326 IAC 2-7-2 (Applicability) because it is a major source, as defined in 326 IAC 2-7-1(22).

SECTION B

GENERAL CONDITIONS

B.1 Definitions [326 IAC 2-7-1]

Terms in this permit shall have the definition assigned to such terms in the referenced regulation. In the absence of definitions in the referenced regulation, the applicable definitions found in the statutes or regulations (IC 13-11, 326 IAC 1-2 and 326 IAC 2-7) shall prevail.

B.2 Permit Term [326 IAC 2-7-5(2)] [326 IAC 2-1.1-9.5] [326 IAC 2-7-4(a)(1)(D)] [IC 15-3-6(a)]

- (a) This permit, T089-15418-00233, is issued for a fixed term of five (5) years from the issuance date of this permit, as determined in accordance with IC 4-21.5-3-5(f) and IC 13-15-5-3. Subsequent revisions, modifications, or amendments of this permit do not affect the expiration date of this permit.
- (b) If IDEM, OAQ, and HDEM, upon receiving a timely and complete renewal permit application, fails to issue or deny the permit renewal prior to the expiration date of this permit, this existing permit shall not expire and all terms and conditions shall continue in effect, including any permit shield provided in 326 IAC 2-7-15, until the renewal permit has been issued or denied.

B.3 Term of Conditions [326 IAC 2-1.1-9.5]

Notwithstanding the permit term of a permit to construct, a permit to operate, or a permit modification, any condition established in a permit issued pursuant to a permitting program approved in the state implementation plan shall remain in effect until:

- (a) the condition is modified in a subsequent permit action pursuant to Title I of the Clean Air Act; or
- (b) the emission unit to which the condition pertains permanently ceases operation.

B.4 Enforceability [326 IAC 2-7-7]

- (a) Unless otherwise stated, all terms and conditions in this permit, including any provisions designed to limit the source's potential to emit, are enforceable by IDEM, HDEM, the United States Environmental Protection Agency (U.S. EPA) and by citizens in accordance with the Clean Air Act.
- (b) Unless otherwise stated, all terms and conditions in this permit that are local requirements, including any provisions designed to limit the source's potential to emit, are enforceable by HDEM.

B.5 Severability [326 IAC 2-7-5(5)]

The provisions of this permit are severable; a determination that any portion of this permit is invalid shall not affect the validity of the remainder of the permit.

B.6 Property Rights or Exclusive Privilege [326 IAC 2-7-5(6)(D)]

This permit does not convey any property rights of any sort, or any exclusive privilege.

B.7 Duty to Provide Information [326 IAC 2-7-5(6)(E)]

- (a) The Permittee shall furnish to IDEM, OAQ and HDEM, within a reasonable time, any information that IDEM, OAQ and HDEM may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The submittal by the Permittee does require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34). Upon request, the Permittee shall also furnish to IDEM, OAQ and HDEM copies of records required to be kept by this permit.

- (b) For information furnished by the Permittee to IDEM OAQ, the Permittee may include a claim of confidentiality in accordance with 326 IAC 17.1. When furnishing copies of requested records directly to U.S. EPA, the Permittee may assert a claim of confidentiality in accordance with 40 CFR 2, Subpart B.

B.8 Certification [326 IAC 2-7-4(f)] [326 IAC 2-7-6(1)] [326 IAC 2-7-5(3)(C)]

- (a) Where specifically designated by this permit or required by an applicable requirement, any application form, report, or compliance certification submitted shall contain certification by a responsible official of truth, accuracy, and completeness. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.
- (b) One (1) certification shall be included, using the attached Certification Form, with each submittal requiring certification. One (1) certification may cover multiple forms in one (1) submittal.
- (c) A responsible official is defined in 326 IAC 2-7-1(34).

B.9 Annual Compliance Certification [326 IAC 2-7-6(5)]

- (a) The Permittee shall annually submit a compliance certification report which addresses the status of the source's compliance with the terms and conditions contained in this permit, including emission limitations, standards, or work practices. The initial certification shall cover the time period from the date of final permit issuance through December 31 of the same year. All subsequent certifications shall cover the time period from January 1 to December 31 of the previous year, and shall be submitted in letter form no later than April 15 of each year to:

Indiana Department of Environmental Management
Compliance Data Section, Office of Air Quality
100 North Senate Avenue
Indianapolis, Indiana 46204

and

Hammond Department of Environmental Management
5925 Calumet Avenue
Hammond, Indiana 46320

and

United States Environmental Protection Agency, Region V
Air and Radiation Division, Air Enforcement Branch - Indiana (AE-17J)
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

- (b) The annual compliance certification report required by this permit shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ and HDEM on or before the date it is due.
- (c) The annual compliance certification report shall include the following:
 - (1) The appropriate identification of each term or condition of this permit that is the basis of the certification;
 - (2) The compliance status;
 - (3) Whether compliance was continuous or intermittent;

- (4) The methods used for determining compliance status of the source, currently and over the reporting period consistent with 326 IAC 2-7-5(3); and
- (5) Such other facts, as specified in Sections D of this permit, as IDEM, OAQ and HDEM may require to determine the compliance status of the source.

The submittal by the Permittee does require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

B.10 Preventive Maintenance Plan [326 IAC 2-7-5(1), (3) and (13)] [326 IAC 2-7-6(1) and (6)] [326 IAC 1-6-3]

- (a) If required by specific condition(s) in Section D of this permit, the Permittee shall maintain Preventive Maintenance Plans (PMPs) including the following information on each facility:
 - (1) Identification of the individual(s) responsible for inspecting, maintaining, and repairing emission control devices;
 - (2) A description of the items or conditions that will be inspected and the inspection schedule for said items or conditions; and
 - (3) Identification and quantification of the replacement parts that will be maintained in inventory for quick replacement.
- (b) The Permittee shall implement the PMPs, including any required record keeping, as necessary to ensure that failure to implement a PMP does not cause or contribute to an exceedance of any limitation on emissions or potential to emit.
- (c) A copy of the PMPs shall be submitted to IDEM, OAQ and HDEM upon request and within a reasonable time, and shall be subject to review and approval by IDEM, OAQ and HDEM. IDEM, OAQ and HDEM may require the Permittee to revise its PMPs whenever lack of proper maintenance causes or is the primary contributor to an exceedance of any limitation on emissions or potential to emit. The PMP does not require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).
- (d) To the extent the Permittee is required by 40 CFR Part 60/63 to have an Operation, Maintenance, and Monitoring (OMM) Plan for a unit, such Plan is deemed to satisfy the PMP requirements of 326 IAC 1-6-3 for that unit.

B.11 Emergency Provisions [326 IAC 2-7-16]

- (a) An emergency, as defined in 326 IAC 2-7-1(12), is not an affirmative defense for an action brought for noncompliance with a federal or state health-based emission limitation.
- (b) An emergency, as defined in 326 IAC 2-7-1(12), constitutes an affirmative defense to an action brought for noncompliance with a technology-based emission limitation if the affirmative defense of an emergency is demonstrated through properly signed, contemporaneous operating logs or other relevant evidence that describe the following:
 - (1) An emergency occurred and the Permittee can, to the extent possible, identify the causes of the emergency;
 - (2) The permitted facility was at the time being properly operated;
 - (3) During the period of an emergency, the Permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards or other requirements in this permit;

- (4) For each emergency lasting one (1) hour or more, the Permittee notified IDEM, OAQ and HDEM within four (4) daytime business hours after the beginning of the emergency, or after the emergency was discovered or reasonably should have been discovered;

IDEM

Telephone Number: 1-800-451-6027 (ask for Office of Air Quality, Compliance Section), or
Telephone Number: 317-233-5674 (ask for Compliance Section)
Facsimile Number: 317-233-5967

HDEM

Telephone Number: 219-853-6306
Facsimile Number: 219-853-6343

- (5) For each emergency lasting one (1) hour or more, the Permittee submitted the attached Emergency Occurrence Report Form or its equivalent, either by mail or facsimile to:

Indiana Department of Environmental Management
Compliance Branch, Office of Air Quality
100 North Senate Avenue
Indianapolis, Indiana 46204

and

Hammond Department of Environmental Management
5925 Calumet Avenue
Hammond, Indiana 46320

within two (2) working days of the time when emission limitations were exceeded due to the emergency.

The notice fulfills the requirement of 326 IAC 2-7-5(3)(C)(ii) and must contain the following:

- (A) A description of the emergency;
- (B) Any steps taken to mitigate the emissions; and
- (C) Corrective actions taken.

The notification, which shall be submitted by the Permittee, does not require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

- (6) The Permittee immediately took all reasonable steps to correct the emergency.
- (c) In any enforcement proceeding, the Permittee seeking to establish the occurrence of an emergency has the burden of proof.
 - (d) This emergency provision supersedes 326 IAC 1-6 (Malfunctions). This permit condition is in addition to any emergency or upset provision contained in any applicable requirement.
 - (e) IDEM, OAQ and HDEM may require that the Preventive Maintenance Plans required under 326 IAC 2-7-4-(c)(9) be revised in response to an emergency.
 - (f) Failure to notify IDEM, OAQ and HDEM by telephone or facsimile of an emergency lasting more than one (1) hour in accordance with (b)(4) and (5) of this condition shall constitute a violation of 326 IAC 2-7 and any other applicable rules.

- (g) If the emergency situation causes a deviation from a technology-based limit, the Permittee may continue to operate the affected emitting facilities during the emergency provided the Permittee immediately takes all reasonable steps to correct the emergency and minimize emissions.
- (h) The Permittee shall include all emergencies in the Quarterly Deviation and Compliance Monitoring Report.

B.12 Permit Shield [326 IAC 2-7-15] [326 IAC 2-7-20] [326 IAC 2-7-12]

- (a) Pursuant to 326 IAC 2-7-15, the Permittee has been granted a permit shield. The permit shield provides that compliance with the conditions of this permit shall be deemed in compliance with any applicable requirements as of the date of permit issuance, provided that either the applicable requirements are included and specifically identified in this permit or the permit contains an explicit determination or concise summary of a determination that other specifically identified requirements are not applicable. The Indiana statutes from IC 13 and rules from 326 IAC, referenced in conditions in this permit, are those applicable at the time the permit was issued. The issuance or possession of this permit shall not alone constitute a defense against an alleged violation of any law, regulation or standard, except for the requirement to obtain a Part 70 permit under 326 IAC 2-7 or for applicable requirements for which a permit shield has been granted.

This permit shield does not extend to applicable requirements which are promulgated after the date of issuance of this permit unless this permit has been modified to reflect such new requirements.

- (b) If, after issuance of this permit, it is determined that the permit is in nonconformance with an applicable requirement, IDEM, OAQ or HDEM shall immediately take steps to reopen and revise this permit and issue a compliance order to the Permittee to ensure expeditious compliance with the applicable requirement until the permit is reissued. The permit shield shall continue in effect so long as the Permittee is in compliance with the compliance order.
- (c) No permit shield shall apply to any permit term or condition that is determined after issuance of this permit to have been based on erroneous information supplied in the permit application. Erroneous information means information that the Permittee knew to be false, or in the exercise of reasonable care should have been known to be false, at the time the information was submitted.
- (d) Nothing in 326 IAC 2-7-15 or in this permit shall alter or affect the following:
 - (1) The provisions of Section 303 of the Clean Air Act (emergency orders), including the authority of the U.S. EPA under Section 303 of the Clean Air Act;
 - (2) The liability of the Permittee for any violation of applicable requirements prior to or at the time of this permit's issuance;
 - (3) The applicable requirements of the acid rain program, consistent with Section 408(a) of the Clean Air Act; and
 - (4) The ability of U.S. EPA to obtain information from the Permittee under Section 114 of the Clean Air Act.
- (e) This permit shield is not applicable to any change made under 326 IAC 2-7-20(b)(2) (Sections 502(b)(10) of the Clean Air Act changes) and 326 IAC 2-7-20(c)(2) (trading based on State Implementation Plan (SIP) provisions).
- (f) This permit shield is not applicable to modifications eligible for group processing until after IDEM, OAQ or HDEM has issued the modifications. [326 IAC 2-7-12(c)(7)]
- (g) This permit shield is not applicable to minor Part 70 permit modifications until after IDEM, OAQ or HDEM has issued the modification. [326 IAC 2-7-12(b)(8)]

B.13 Prior Permits Superseded [326 IAC 2-1.1-9.5] [326 IAC 2-7-10.5]

- (a) All terms and conditions of permits established prior to T089-15418-00233 and issued pursuant to permitting programs approved into the state implementation plan have been either:
- (1) incorporated as originally stated,
 - (2) revised under 326 IAC 2-7-10.5, or
 - (3) deleted under 326 IAC 2-7-10.5
- (b) Provided that all terms and conditions are accurately reflected in this combined permit, all previous registrations and permits are superseded by this Part 70 operating permit.

B.14 Termination of Right to Operate [326 IAC 2-7-10] [326 IAC 2-7-4(a)]

The Permittee's right to operate this source terminates with the expiration of this permit unless a timely and complete renewal application is submitted at least nine (9) months prior to the date of expiration of the source's existing permit, consistent with 326 IAC 2-7-3 and 326 IAC 2-7-4(a).

B.15 Deviations from Permit Requirements and Conditions [326 IAC 2-7-5(3)(C)(ii)]

- (a) Deviations from any permit requirements (for emergencies see Section B - Emergency Provisions), the probable cause of such deviations, and any response steps or preventive measures taken shall be reported to:

Indiana Department of Environmental Management
Compliance Branch, Office of Air Quality
100 North Senate Avenue
Indianapolis, Indiana 46204

and

Hammond Department of Environmental Management
5925 Calumet Avenue
Hammond, Indiana 46320

using the attached Quarterly Deviation and Compliance Monitoring Report, or its equivalent. A deviation required to be reported pursuant to an applicable requirement that exists independent of this permit, shall be reported according to the schedule stated in the applicable requirement and does not need to be included in this report.

The Quarterly Deviation and Compliance Monitoring Report does require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

- (b) A deviation is an exceedance of a permit limitation or a failure to comply with a requirement of the permit.

**B.16 Permit Modification, Reopening, Revocation and Reissuance, or Termination
[326 IAC 2-7-5(6)(C)] [326 IAC 2-7-8(a)] [326 IAC 2-7-9]**

- (a) This permit may be modified, reopened, revoked and reissued, or terminated for cause. The filing of a request by the Permittee for a Part 70 permit modification, revocation and reissuance, or termination, or of a notification of planned changes or anticipated noncompliance does not stay any condition of this permit. [326 IAC 2-7-5(6)(C)] The notification by the Permittee does require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

- (b) This permit shall be reopened and revised under any of the circumstances listed in IC 13-15-7-2 or if IDEM, OAQ or HDEM determines any of the following:
 - (1) That this permit contains a material mistake.
 - (2) That inaccurate statements were made in establishing the emissions standards or other terms or conditions.
 - (3) That this permit must be revised or revoked to assure compliance with an applicable requirement. [326 IAC 2-7-9(a)(3)]
- (c) Proceedings by IDEM, OAQ or HDEM to reopen and revise this permit shall follow the same procedures as apply to initial permit issuance and shall affect only those parts of this permit for which cause to reopen exists. Such reopening and revision shall be made as expeditiously as practicable. [326 IAC 2-7-9(b)]
- (d) The reopening and revision of this permit, under 326 IAC 2-7-9(a), shall not be initiated before notice of such intent is provided to the Permittee by IDEM, OAQ or HDEM at least thirty (30) days in advance of the date this permit is to be reopened, except that IDEM, OAQ and HDEM may provide a shorter time period in the case of an emergency. [326 IAC 2-7-9(c)]

B.17 Permit Renewal [326 IAC 2-7-3] [326 IAC 2-7-4] [326 IAC 2-7-8(e)]

- (a) The application for renewal shall be submitted using the application form or forms prescribed by IDEM, OAQ and HDEM, and shall include the information specified in 326 IAC 2-7-4. Such information shall be included in the application for each emission unit at this source, except those emission units included on the trivial or insignificant activities list contained in 326 IAC 2-7-1(40) and 326 IAC 2-7-1(21). The renewal application does require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

Request for renewal shall be submitted to:

Indiana Department of Environmental Management
Permits Branch, Office of Air Quality
100 North Senate Avenue
Indianapolis, Indiana 46204

and

Hammond Department of Environmental Management
5925 Calumet Avenue
Hammond, Indiana 46320

- (b) A timely renewal application is one that is:
 - (1) Submitted at least nine (9) months prior to the date of the expiration of this permit; and
 - (2) If the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ and HDEM on or before the date it is due.
- (c) If the Permittee submits a timely and complete application for renewal of this permit, the source's failure to have a permit is not a violation of 326 IAC 2-7 until IDEM, OAQ and HDEM, takes final action on the renewal application, except that this protection shall cease to apply if, subsequent to the completeness determination, the Permittee fails to submit by the deadline specified in writing by IDEM, OAQ and HDEM, any additional information identified as being needed to process the application.

B.18 Permit Amendment or Modification [326 IAC 2-7-11] [326 IAC 2-7-12]

- (a) Permit amendments and modifications are governed by the requirements of 326 IAC 2-7-11 or 326 IAC 2-7-12 whenever the Permittee seeks to amend or modify this permit.
- (b) Any application requesting an amendment or modification of this permit shall be submitted to:

Indiana Department of Environmental Management
Permits Branch, Office of Air Quality
100 North Senate Avenue
Indianapolis, Indiana 46204

and

Hammond Department of Environmental Management
5925 Calumet Avenue
Hammond, Indiana 46320

Any such application shall be certified by the "responsible official" as defined by 326 IAC 2-7-1(34).
- (c) The Permittee may implement administrative amendment changes addressed in the request for an administrative amendment immediately upon submittal of the request. [326 IAC 2-7-11(c)(3)]
- (d) No permit amendment or modification is required for the addition, operation or removal of a nonroad engine, as defined in 40 CFR 89.2.

B.19 Permit Revision Under Economic Incentives and Other Programs [326 IAC 2-7-5(8)] [326 IAC 2-7-12 (b)(2)]

- (a) No Part 70 permit revision shall be required under any approved economic incentives, marketable Part 70 permits, emissions trading, and other similar programs or processes for changes that are provided for in a Part 70 permit.
- (b) Notwithstanding 326 IAC 2-7-12(b)(1) and 326 IAC 2-7-12(c)(1), minor Part 70 permit modification procedures may be used for Part 70 modifications involving the use of economic incentives, marketable Part 70 permits, emissions trading, and other similar approaches to the extent that such minor Part 70 permit modification procedures are explicitly provided for in the applicable State Implementation Plan (SIP) or in applicable requirements promulgated or approved by the U.S. EPA.

B.20 Operational Flexibility [326 IAC 2-7-20] [326 IAC 2-7-10.5]

- (a) The Permittee may make any change or changes at the source that are described in 326 IAC 2-7-20(b), (c), or (e), without a prior permit revision, if each of the following conditions is met:
 - (1) The changes are not modifications under any provision of Title I of the Clean Air Act;
 - (2) Any preconstruction approval required by 326 IAC 2-7-10.5 has been obtained;
 - (3) The changes do not result in emissions which exceed the emissions allowable under this permit (whether expressed herein as a rate of emissions or in terms of total emissions);
 - (4) The Permittee notifies the:

Indiana Department of Environmental Management
Permits Branch, Office of Air Quality
100 North Senate Avenue
Indianapolis, Indiana 46204

and

Hammond Department of Environmental Management
5925 Calumet Avenue
Hammond, Indiana 46320

and

United States Environmental Protection Agency, Region V
Air and Radiation Division, Regulation Development Branch - Indiana (AR-18J)
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

in advance of the change by written notification at least ten (10) days in advance of the proposed change. The Permittee shall attach every such notice to the Permittee's copy of this permit; and

- (5) The Permittee maintains records on-site which document, on a rolling five (5) year basis, all such changes and emissions trading that are subject to 326 IAC 2-7-20(b), (c), or (e) and makes such records available, upon reasonable request, for public review.

Such records shall consist of all information required to be submitted to IDEM, OAQ and HDEM in the notices specified in 326 IAC 2-7-20(b)(1), (c)(1), and (e)(2).

- (b) The Permittee may make Section 502(b)(10) of the Clean Air Act changes (this term is defined at 326 IAC 2-7-1(36)) without a permit revision, subject to the constraint of 326 IAC 2-7-20(a). For each such Section 502(b)(10) of the Clean Air Act change, the required written notification shall include the following:

- (1) A brief description of the change within the source;
- (2) The date on which the change will occur;
- (3) Any change in emissions; and
- (4) Any permit term or condition that is no longer applicable as a result of the change.

The notification which shall be submitted is not considered an application form, report or compliance certification. Therefore, the notification by the Permittee does not require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

- (c) Emission Trades [326 IAC 2-7-20(c)]
The Permittee may trade increases and decreases in emissions in the source, where the applicable SIP provides for such emission trades without requiring a permit revision, subject to the constraints of Section (a) of this condition and those in 326 IAC 2-7-20(c).
- (d) Alternative Operating Scenarios [326 IAC 2-7-20(d)]
The Permittee may make changes at the source within the range of alternative operating scenarios that are described in the terms and conditions of this permit in accordance with 326 IAC 2-7-5(9). No prior notification of IDEM, OAQ, or U.S. EPA is required.
- (e) Backup fuel switches specifically addressed in, and limited under, Section D of this permit shall not be considered alternative operating scenarios. Therefore, the notification requirements of part (a) of this condition do not apply.

B.21 Source Modification Requirement [326 IAC 2-7-10.5]

A modification, construction, or reconstruction is governed by the requirements of 326 IAC 2 and 326 IAC 2-7-10.5.

B.22 Inspection and Entry [326 IAC 2-7-6] [IC 13-14-2-2] [IC 13-30-3-1] [IC 13-17-3-2]

Upon presentation of proper identification cards, credentials, and other documents as may be required by law, and subject to the Permittee's right under all applicable laws and regulations to assert that the information collected by the agency is confidential and entitled to be treated as such, the Permittee shall allow IDEM, OAQ, HDEM and U.S. EPA, or an authorized representative to perform the following:

- (a) Enter upon the Permittee's premises where a Part 70 source is located, or emissions related activity is conducted, or where records must be kept under the conditions of this permit;
- (b) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, have access to and copy any records that must be kept under the conditions of this permit;
- (c) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, inspect any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit;
- (d) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, sample or monitor substances or parameters for the purpose of assuring compliance with this permit or applicable requirements; and
- (e) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, utilize any photographic, recording, testing, monitoring, or other equipment for the purpose of assuring compliance with this permit or applicable requirements.

B.23 Transfer of Ownership or Operational Control [326 IAC 2-7-11]

- (a) The Permittee must comply with the requirements of 326 IAC 2-7-11 whenever the Permittee seeks to change the ownership or operational control of the source and no other change in the permit is necessary.
- (b) Any application requesting a change in the ownership or operational control of the source shall contain a written agreement containing a specific date for transfer of permit responsibility, coverage and liability between the current and new Permittee. The application shall be submitted to:

Indiana Department of Environmental Management
Permits Branch, Office of Air Quality
100 North Senate Avenue
Indianapolis, Indiana 46204

and

Hammond Department of Environmental Management
5925 Calumet Avenue
Hammond, IN 46320

The application which shall be submitted by the Permittee does require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

- (c) The Permittee may implement administrative amendment changes addressed in the request for an administrative amendment immediately upon submittal of the request. [326 IAC 2-7-11(c)(3)]

B.24 Annual Fee Payment [326 IAC 2-7-19] [326 IAC 2-7-5(7)][326 IAC 2-1.1-7]

- (a) The Permittee shall pay annual fees to IDEM, OAQ and HDEM within thirty (30) calendar days of receipt of a billing. Pursuant to 326 IAC 2-7-19(b), if the Permittee does not receive a bill from IDEM, OAQ and HDEM the applicable fee is due April 1 of each year.
- (b) Except as provided in 326 IAC 2-7-19(e), failure to pay may result in administrative enforcement action or revocation of this permit.
- (c) The Permittee may call the following telephone numbers: 1-800-451-6027 or 317-233-4230 (ask for OAQ, Billing, Licensing, and Training Section), to determine the appropriate permit fee.

B.25 Credible Evidence [326 IAC 2-7-5(3)] [326 IAC 2-7-6] [62 FR 8314]

For the purpose of submitting compliance certifications or establishing whether or not the Permittee has violated or is in violation of any condition of this permit, nothing in this permit shall preclude the use, including the exclusive use, of any credible evidence or information relevant to whether the Permittee would have been in compliance with the condition of this permit if the appropriate performance or compliance test or procedure had been performed.

SECTION C

SOURCE OPERATION CONDITIONS

Entire Source

Emission Limitations and Standards [326 IAC 2-7-5(1)]

C.1 Opacity [326 IAC 5-1]

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Alternative Opacity Limitations), opacity shall meet the following, unless otherwise stated in this permit:

- (a) Opacity shall not exceed an average of twenty percent (20%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
- (b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

C.2 Open Burning [326 IAC 4-1] [IC 13-17-9]

The Permittee shall not open burn any material except as provided in 326 IAC 4-1-3, 326 IAC 4-1-4 or 326 IAC 4-1-6. The previous sentence notwithstanding, the Permittee may open burn in accordance with an open burning approval issued by the Commissioner under 326 IAC 4-1-4.1. 326 IAC 4-1-3(a)(2)(A) and (B) are not federally enforceable.

C.3 Incineration [326 IAC 4-2][326 IAC 9-1-2]

The Permittee shall not operate an incinerator or incinerate any waste or refuse except as provided in 326 IAC 4-2 and 326 IAC 9-1-2. 326 IAC 9-1-2 is not federally enforceable.

C.4 Fugitive Dust Emissions [326 IAC 6-4]

The Permittee shall not allow fugitive dust to escape beyond the property line or boundaries of the property, right-of-way, or easement on which the source is located, in a manner that would violate 326 IAC 6-4 (Fugitive Dust Emissions). 326 IAC 6-4-2(4) is not federally enforceable.

C.5 Asbestos Abatement Projects [326 IAC 14-10] [326 IAC 18][40 CFR 61, Subpart M]

- (a) Notification requirements apply to each owner or operator. If the combined amount of regulated asbestos containing material (RACM) to be stripped, removed or disturbed is at least 260 linear feet on pipes or 160 square feet on other facility components, or at least thirty-five (35) cubic feet on all facility components, then the notification requirements of 326 IAC 14-10-3 are mandatory. All demolition projects require notification whether or not asbestos is present.
- (b) The Permittee shall ensure that a written notification is sent on a form provided by the Commissioner at least ten (10) working days before asbestos stripping or removal work or before demolition begins, per 326 IAC 14-10-3, and shall update such notice as necessary, including, but not limited to the following:
 - (1) When the amount of affected asbestos containing material increases or decreases by at least twenty percent (20%); or
 - (2) If there is a change in the following:
 - (A) Asbestos removal or demolition start date;
 - (B) Removal or demolition contractor; or

(C) Waste disposal site.

- (c) The Permittee shall ensure that the notice is postmarked or delivered according to the guidelines set forth in 326 IAC 14-10-3(2).
- (d) The notice to be submitted shall include the information enumerated in 326 IAC 14-10-3(3).

All required notifications shall be submitted to:

Indiana Department of Environmental Management
Asbestos Section, Office of Air Quality
100 North Senate Avenue
Indianapolis, Indiana 46204

and

Hammond Department of Environmental Management
5925 Calumet Avenue
Hammond, Indiana 46320

The notice shall include a signed certification from the owner or operator that the information provided in this notification is correct and that only Indiana licensed workers and project supervisors will be used to implement the asbestos removal project. The notifications do not require a certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

- (e) Procedures for Asbestos Emission Control
The Permittee shall comply with the applicable emission control procedures in 326 IAC 14-10-4 and 40 CFR 61.145(c). Per 326 IAC 14-10-1, emission control requirements are applicable for any removal or disturbance of RACM greater than three (3) linear feet on pipes or three (3) square feet on any other facility components or a total of at least 0.75 cubic feet on all facility components.
- (f) Demolition and Renovation
The Permittee shall thoroughly inspect the affected facility or part of the facility where the demolition or renovation will occur for the presence of asbestos pursuant to 40 CFR 61.145(a).
- (g) Indiana Accredited Asbestos Inspector
The Permittee shall comply with 326 IAC 14-10-1(a) that requires the owner or operator, prior to a renovation/demolition, to use an Indiana Accredited Asbestos Inspector to thoroughly inspect the affected portion of the facility for the presence of asbestos. The requirement to use an Indiana Accredited Asbestos inspector is not federally enforceable.

Testing Requirements [326 IAC 2-7-6(1)]

C.6 Performance Testing [326 IAC 3-6]

- (a) All testing shall be performed according to the provisions of 326 IAC 3-6 (Source Sampling Procedures), except as provided elsewhere in this permit, utilizing any applicable procedures and analysis methods specified in 40 CFR 51, 40 CFR 60, 40 CFR 61, 40 CFR 63, 40 CFR 75, or other procedures approved by IDEM, OAQ.

A test protocol, except as provided elsewhere in this permit, shall be submitted to:

Indiana Department of Environmental Management
Compliance Data Section, Office of Air Quality
100 North Senate Avenue
Indianapolis, Indiana 46204

and

Hammond Department of Environmental Management
5925 Calumet Avenue
Hammond, Indiana 46320

no later than thirty-five (35) days prior to the intended test date. The protocol submitted by the Permittee does not require certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

- (b) The Permittee shall notify IDEM, OAQ of the actual test date at least fourteen (14) days prior to the actual test date. The notification submitted by the Permittee does not require certification by the "responsible official" as defined by 326 IAC 2-7-1(34).
- (c) Pursuant to 326 IAC 3-6-4(b), all test reports must be received by IDEM, OAQ and HDEM not later than forty-five (45) days after the completion of the testing. An extension may be granted by IDEM, OAQ and HDEM, if the source submits to IDEM, OAQ, a reasonable written explanation not later than five (5) days prior to the end of the initial forty-five (45) day period.

Compliance Requirements [326 IAC 2-1.1-11]

C.7 Compliance Requirements [326 IAC 2-1.1-11]

The commissioner may require stack testing, monitoring, or reporting at any time to assure compliance with all applicable requirements by issuing an order under 326 IAC 2-1.1-11. Any monitoring or testing shall be performed in accordance with 326 IAC 3 or other methods approved by the commissioner or the U. S. EPA.

Compliance Monitoring Requirements [326 IAC 2-7-5(1)] [326 IAC 2-7-6(1)]

C.8 Compliance Monitoring [326 IAC 2-7-5(3)] [326 IAC 2-7-6(1)]

Unless otherwise specified in this permit, all monitoring and record keeping requirements not already legally required shall be implemented within thirty (30) days of permit issuance. If required by Section D, the Permittee shall be responsible for installing any necessary equipment and initiating any required monitoring related to that equipment. If due to circumstances beyond its control, equipment cannot be installed and operated within thirty (30) days, the Permittee may extend the compliance schedule related to the equipment for an additional thirty (30) days provided the Permittee notifies:

Indiana Department of Environmental Management
Compliance Branch, Office of Air Quality
100 North Senate Avenue
Indianapolis, Indiana 46204

and

Hammond Department of Environmental Management
5925 Calumet Avenue
Hammond, Indiana 46320

in writing, prior to the end of the initial thirty (30) day compliance schedule, with full justification of the reasons for the inability to meet this date.

The notification which shall be submitted by the Permittee does require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

Unless otherwise specified in the approval for the new emission unit(s), compliance monitoring for new emission units or emission units added through a source modification shall be implemented when operation begins.

C.9 Monitoring Methods [326 IAC 3] [40 CFR 60] [40 CFR 63]

Any monitoring or testing required by Section D of this permit shall be performed according to the provisions of 326 IAC 3, 40 CFR 60, Appendix A, 40 CFR 60 Appendix B, 40 CFR 63, or other approved methods as specified in this permit.

C.10 Pressure Gauge and Other Instrument Specifications [326 IAC 2-1.1-11] [326 IAC 2-7-5(3)][326 IAC 2-7-6(1)]

- (a) Whenever a condition in this permit requires the measurement of pressure drop across any part of the unit or its control device, the gauge employed shall have a scale such that the expected normal reading shall be no less than twenty percent (20%) of full scale and be accurate within plus or minus two percent ($\pm 2\%$) of full scale reading.
- (b) Whenever a condition in this permit requires the measurement of a temperature, the instrument employed shall have a scale such that the expected normal reading shall be no less than twenty percent (20%) of full scale and be accurate within plus or minus two percent ($\pm 2\%$) of full scale reading.
- (c) The Permittee may request the IDEM, OAQ or HDEM approve the use of a pressure gauge or other instrument that does not meet the above specifications provided the Permittee can demonstrate an alternative pressure gauge or other instrument specification will adequately ensure compliance with permit conditions requiring the measurement of pressure drop or other parameters.

Corrective Actions and Response Steps [326 IAC 2-7-5] [326 IAC 2-7-6]

C.11 Emergency Reduction Plans [326 IAC 1-5-2] [326 IAC 1-5-3]

Pursuant to 326 IAC 1-5-2 (Emergency Reduction Plans; Submission):

- (a) The Permittee prepared and submitted written emergency reduction plans (ERPs) consistent with safe operating procedures on March 11, 1991.
- (b) Upon direct notification by IDEM, OAQ or HDEM, that a specific air pollution episode level is in effect, the Permittee shall immediately put into effect the actions stipulated in the approved ERP for the appropriate episode level. [326 IAC 1-5-3]

C.12 Risk Management Plan [326 IAC 2-7-5(12)] [40 CFR 68]

If a regulated substance, as defined in 40 CFR 68 is present at a source in more than a threshold quantity, the source must comply with the applicable requirements of 40 CFR 68.

C.13 Compliance Response Plan - Preparation, Implementation, Records, and Reports [326 IAC 2-7-5] [326 IAC 2-7-6]

- (a) The Permittee is required to prepare a Compliance Response Plan (CRP) for each compliance monitoring condition of this permit. If a Permittee is required to have an Operation, Maintenance and Monitoring (OMM) Plan under 40 CFR 60/63, such plans shall be deemed to satisfy the requirements for a CRP for those compliance monitoring conditions. A CRP shall be submitted to IDEM, OAQ and HDEM upon request. The CRP shall be prepared within ninety (90) days after issuance of this permit by the Permittee, supplemented from time to time by the Permittee, maintained on site, and comprised of:

- (1) Reasonable response steps that may be implemented in the event that a response step is needed pursuant to the requirements of Section D of this permit; and an expected timeframe for taking reasonable response steps.
- (2) If, at any time, the Permittee takes reasonable response steps that are not set forth in the Permittee's current Compliance Response Plan or Operation, Maintenance and Monitoring (OMM) Plan and the Permittee documents such response in accordance with subsection (e) below, the Permittee shall amend its Compliance Response Plan or Operation, Maintenance and Monitoring (OMM) Plan to include such response steps taken.

The OMM Plan shall be submitted within the time frames specified by the applicable 40 CFR 60/63 requirement.

- (b) For each compliance monitoring condition of this permit, reasonable response steps shall be taken when indicated by the provisions of that compliance monitoring condition as follows:
 - (1) Reasonable response steps shall be taken as set forth in the Permittee's current Compliance Response Plan or Operation, Maintenance and Monitoring (OMM) Plan; or
 - (2) If none of the reasonable response steps listed in the Compliance Response Plan or Operation, Maintenance and Monitoring (OMM) Plan is applicable or responsive to the excursion, the Permittee shall devise and implement additional response steps as expeditiously as practical. Taking such additional response steps shall not be considered a deviation from this permit so long as the Permittee documents such response steps in accordance with this condition.
 - (3) If the Permittee determines that additional response steps would necessitate that the emissions unit or control device be shut down, and it will be ten 10 days or more until the unit or device will be shut down, then the Permittee shall promptly notify the IDEM, OAQ and HDEM of the expected date of the shut down. The notification shall also include the status of the applicable compliance monitoring parameter with respect to normal, and the results of the response actions taken up to the time of notification.
 - (4) Failure to take reasonable response steps shall be considered a deviation of the permit.
- (c) The Permittee is not required to take any further response steps for any of the following reasons:
 - (1) A false reading occurs due to the malfunction of the monitoring equipment and prompt action was taken to correct the monitoring equipment.
 - (2) The Permittee has determined that the compliance monitoring parameters established in the permit conditions are technically inappropriate, has previously submitted a request for a minor permit modification to the permit, and such request has not been denied.
 - (3) An automatic measurement was taken when the process was not operating.
 - (4) The process has already returned or is returning to operating within "normal" parameters and no response steps are required.
- (d) When implementing reasonable steps in response to a compliance monitoring condition, if the Permittee determines that an exceedance of an emission limitation has occurred, the Permittee shall report such deviations pursuant to Section B-Deviations from Permit Requirements and Conditions.

- (e) The Permittee shall record all instances when, in accordance with Section D, response steps are taken. In the event of an emergency, the provisions of 326 IAC 2-7-16 (Emergency Provisions) requiring prompt corrective action to mitigate emissions shall prevail.
- (f) Except as otherwise provided by a rule or provided specifically in Section D, all monitoring as required in Section D shall be performed when the emission unit is operating, except for time necessary to perform quality assurance and maintenance activities.

C.14 Actions Related to Noncompliance Demonstrated by a Stack Test [326 IAC 2-7-5] [326 IAC 2-7-6]

- (a) When the results of a stack test performed in conformance with Section C - Performance Testing, of this permit exceed the level specified in any condition of this permit, the Permittee shall take appropriate response actions. The Permittee shall submit a description of these response actions to IDEM, OAQ, within thirty (30) days of receipt of the test results. The Permittee shall take appropriate action to minimize excess emissions from the affected facility while the response actions are being implemented.
- (b) A retest to demonstrate compliance shall be performed within one hundred twenty (120) days of receipt of the original test results. Should the Permittee demonstrate to IDEM, OAQ that retesting in one hundred and twenty (120) days is not practicable, IDEM, OAQ may extend the retesting deadline.
- (c) IDEM, OAQ reserves the authority to take any actions allowed under law in response to noncompliant stack tests.

The response action documents submitted pursuant to this condition do require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

C.15 Emission Statement [326 IAC 2-7-5(3)(C)(iii)] [326 IAC 2-7-5(7)] [326 IAC 2-7-19(c)] [326 IAC 2-6]

- (a) In accordance with the compliance schedule specified in 326 IAC 2-6-3(b)(1), the Permittee shall submit by July 1 an emission statement covering the previous calendar year as follows:
 - (1) starting in 2007 and every three (3) years thereafter, and
 - (2) any year not already required under (1) if the source emits volatile organic compounds or oxides of nitrogen into the ambient air at levels equal to or greater than twenty-five (25) tons during the previous calendar year.
- (b) The emission statement shall contain, at a minimum, the information specified in 326 IAC 2-6-4(c) and shall meet the following requirements:
 - (1) Indicate estimated actual emissions of all pollutants listed in 326 IAC 2-6-4(a);
 - (2) Indicate estimated actual emissions of regulated pollutants as defined by 326 IAC 2-7-1 (32) ("Regulated pollutant, which is used only for purposes of Section 19 of this rule") from the source, for purpose of fee assessment.

The emission statement must be submitted to:

Indiana Department of Environmental Management
Technical Support and Modeling Section, Office of Air Quality
100 North Senate Avenue
Indianapolis, Indiana 46204

and

Hammond Department of Environmental Management
5925 Calumet Avenue
Hammond, Indiana 46320

The emission statement does require the certification by the responsible official as defined by 326 IAC 2-7-1(34).

- (c) The emission statement required by this permit shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ and HDEM on or before the date it is due.

C.16 General Record Keeping Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-6]

- (a) Records of all required monitoring data, reports and support information required by this Permit shall be retained for a period of at least five (5) years from the date of monitoring sample, measurement, report, or application. These records shall be physically present or electronically accessible at the source location for a minimum of three (3) years. The records may be stored elsewhere for the remaining two (2) years as long as they are available upon request. If the Commissioner or HDEM makes a request for records to the Permittee, the Permittee shall furnish the records to the Commissioner and HDEM within a reasonable time.
- (b) Unless otherwise specified in this permit, all record keeping requirements not already legally required shall be implemented within ninety (90) days of permit issuance.

C.17 General Reporting Requirements [326 IAC 2-7-5(3)(C)] [326 IAC 2-1.1-11]

- (a) The source shall submit the attached Quarterly Deviation and Compliance Monitoring Report or its equivalent. Any deviation from permit requirements, the date(s) of each deviation, the cause of the deviation, and the response steps taken must be reported. This report shall be submitted within thirty (30) days of the end of the reporting period. The Quarterly Deviation and Compliance Monitoring Report shall include the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).
- (b) The report required in (a) of this condition and reports required by conditions in Section D of this permit shall be submitted to:

Indiana Department of Environmental Management
Compliance Data Section, Office of Air Quality
100 North Senate Avenue
Indianapolis, Indiana 46204

and

Hammond Department of Environmental Management
5925 Calumet Avenue
Hammond, Indiana 46320

- (c) Unless otherwise specified in this permit, any notice, report, or other submission required by this permit shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ and HDEM on or before the date it is due.

- (d) Unless otherwise specified in this permit, all reports required in Section D of this permit shall be submitted within thirty (30) days of the end of the reporting period. All reports do require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).
- (e) Reporting periods are based on calendar years, unless otherwise specified in this permit. For the purpose of this permit "calendar year" means the twelve (12) month period from January 1 to December 31 inclusive.

Stratospheric Ozone Protection

C.18 Compliance with 40 CFR 82 and 326 IAC 22-1

Pursuant to 40 CFR 82 (Protection of Stratospheric Ozone), Subpart F, except as provided for motor vehicle air conditioners in Subpart B, the Permittee shall comply with the standards for recycling and emissions reduction:

- (a) Persons opening appliances for maintenance, service, repair, or disposal must comply with the required practices pursuant to 40 CFR 82.156.
- (b) Equipment used during the maintenance, service, repair, or disposal of appliances must comply with the standards for recycling and recovery equipment pursuant to 40 CFR 82.158.
- (c) Persons performing maintenance, service, repair, or disposal of appliances must be certified by an approved technician certification program pursuant to 40 CFR 82.161.

SECTION D.1 FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-7-5(15)]: Loading Rack

One (1) Tank Truck Loading Operation, identified as LR-1, where gasoline, denatured ethanol and distillates are bottom-loaded into transport trucks. Displaced hydrocarbon emissions are controlled by a John Zink Carbon Adsorption/Absorption Vapor Recovery Unit (VRU). The loading operation includes five (5) loading bays and has a maximum loading capacity of 144,000 gallons per hour. The loading facility was installed in 1961 and was modified in 1991. The VRU was installed in 1991. (The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.1.1 General Provisions Relating to NSPS [326 IAC 12-1] [40 CFR 60, Subpart A]

The provisions of 40 CFR 60, Subpart A - General Provisions, which are incorporated by reference in 326 IAC 12-1, apply to the loading rack except when otherwise specified in 40 CFR 60, Subpart XX.

D.1.2 Volatile Organic Compound (VOC) [326 IAC 12] [40 CFR 60, Subpart XX] [326 IAC 8-4-4] [326 IAC 8-4-9]

- (a) The Tank Truck Loading Rack shall be equipped with a vapor collection system designed to collect the total organic compounds vapors displaced from tank trucks during product loading and direct the vapors to the Vapor Recovery Unit (VRU).
- (b) No loading of gasoline into tank trucks shall take place unless the VRU is: in operation, in good working order, and in compliance with D.1.2(c). Denatured ethanol and distillate having a Reid vapor pressure less than twenty-seven and six-tenths (27.6) kilopascals may be loaded without the VRU being in operation provided the tank truck being loaded did not contain gasoline on the immediately previous load. When not utilizing the VRU to control emissions during loading of tank trucks, the Permittee shall obtain a certification from the driver of each tank truck attesting that the tank truck did not contain gasoline on the immediately previous load.
- (c) The emissions to the atmosphere from the VRU due to the loading of liquid product into gasoline tank trucks are not to exceed thirty-five (35) milligrams of total organic compounds per liter of gasoline loaded, except as noted in paragraph (c) of 40 CFR 60.502.
- (d) Each vapor collection system shall be designed to prevent any total organic compounds vapors collected at one loading rack from passing to another loading rack.
- (e) Loadings of liquid product into gasoline tank trucks shall be limited to vapor-tight gasoline tank trucks using the following procedures:
 - (1) The Permittee shall obtain the vapor tightness documentation described in 40 CFR 60.505(b) for each gasoline tank truck which is to be loaded at the affected facility.
 - (2) The Permittee shall review the vapor tightness documentation to insure that each gasoline truck has successfully demonstrated vapor tightness according to the procedures in 40 CFR Part 60, Method 27. Each tank truck must be tested annually. During the test, the tank truck must:
 - (A) sustain a pressure change of no more than one (1) inch of water in five (5) minutes when pressurized to eighteen (18) inches of water;
 - (B) sustain a vacuum change of no more than one (1) inch of water in five (5) minutes when subjected to an initial vacuum of six (6) inches of water.
 - (C) The tank truck's internal vapor valve shall be tested in accordance with 326 IAC 8-4-9(b)(1)(B). The initial pressure of the tank truck shall be set to eighteen (18) inches of

water for the test. The maximum allowable pressure increase in the vapor return line and manifold is five (5) inches of water during the five (5) minute test period.

- (3) The Permittee shall record the tank identification number of each gasoline tank truck loaded at the facility.
 - (4) The Permittee shall cross-check each tank identification number obtained in paragraph D.1.2(f)(3) with the file of tank vapor tightness documentation within 2 weeks after the corresponding tank is loaded.
 - (5) The Permittee shall notify the owner or operator of each non-vapor-tight gasoline tank truck loaded at the affected facility within 3 weeks after the loading has occurred.
 - (6) The Permittee shall take steps assuring that the non-vapor-tight gasoline tank truck will not be reloaded at the affected facility until vapor tightness documentation for that tank is obtained.
 - (7) Alternate procedures to those described in paragraphs (e)(1) through (5) of 40 CFR 60.502 for limiting gasoline tank truck loadings may be used upon application to, and approval by, the IDEM, OAQ and HDEM.
- (f) The Permittee shall act to assure that loadings of gasoline tank trucks at the affected facility are made only into tanks equipped with vapor collection equipment that is compatible with the terminal's vapor collection system.
 - (g) The Permittee shall act to assure that the terminal's and the tank truck's vapor collection systems are connected during each loading of a gasoline tank truck at the affected facility. Examples of actions to accomplish this include training drivers in the hookup procedures and posting visible reminder signs at the affected loading racks.
 - (h) The vapor collection and liquid loading equipment shall be designed and operated to prevent gauge pressure in the tank truck from exceeding 4,500 pascals (450 mm of water) and a vacuum from exceeding one thousand five hundred (1,500) pascals (6 inches of water) during product loading. This level is not to be exceeded when measured by the procedures specified in 40 CFR 60.503(d).
 - (i) The Permittee shall repair and retest a vapor collection or control system that exceeds the limits in D.1.2(i) within fifteen (15) days.
 - (j) No pressure-vacuum vent in the bulk gasoline terminal's vapor collection system shall begin to open at a system pressure less than 4,500 pascals (450 mm of water).
 - (k) A means shall be provided to prevent liquid drainage from the loading device when it is not in use or to accomplish complete drainage before the loading device is disconnected.
 - (l) The Permittee shall operate the vapor control system and gasoline loading rack in a manner that prevents avoidable visible liquid leaks during loading or unloading operations.
 - (m) All loading and vapor lines are equipped with fittings which make vapor-tight connections and which will be closed upon disconnection.

D.1.3 Preventive Maintenance Plan [326 IAC 2-7-5(13)]

A Preventive Maintenance Plan, in accordance with Section B - Preventive Maintenance Plan, of this permit, is required for this facility and its control equipment.

Compliance Determination Requirements

D.1.4 Testing Requirements [326 IAC 2-7-6(1)]

A compliance stack test shall be performed to demonstrate compliance with the VOC limit of (35) mg/l of gasoline loaded at the exhaust of the vapor recovery unit. The test shall be completed within eighteen (18) months of issuance of this permit and repeated no less than once every 5 years thereafter. Testing shall be performed in accordance with 326 IAC 3-6 using methods acceptable to the Commissioner.

D.1.5 Inspection Requirements [40 CFR 60, Subpart XX]

Each calendar month, the vapor collection system, the vapor processing system, and each loading rack handling gasoline shall be inspected during the loading of gasoline tank trucks for total organic compounds liquid or vapor leaks in accordance with 40 CFR 60.502(j). The source of the leak shall be repaired within 15 calendar days after it is detected.

Compliance Monitoring Requirements [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

D.1.6 Monitoring [40 CFR 64]

- (a) When operating the VRU to control VOC emissions, the Permittee shall monitor and record the carbon bed vacuum pressure during the regeneration cycle. During the loading of gasoline, this parameter shall be recorded at a frequency not to exceed fifteen (15) minutes.

Each scheduled workday, the Permittee shall review the previous day(s) records of carbon bed vacuum pressure ensuring that vacuum pressure exceeded twenty-five (25) inches of mercury in each regeneration cycle. On each scheduled workday the Permittee shall observe one regeneration cycle of each carbon bed, noting the maximum observed temperature on each carbon bed, verifying the switching of beds, and that subsequent regeneration cycles are nominally of 15 minutes in duration. The Compliance Response Plan for this unit shall contain troubleshooting, contingency and corrective actions for when the regeneration cycle exceeds fifteen (15) minutes, carbon bed temperature exceeds one hundred fifty degrees Fahrenheit (150°F), or carbon bed vacuum pressure during the regeneration cycle fails to exceed twenty-five (25) inches of mercury. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports, shall be considered a deviation from this permit.

- (b) Additional inspections and preventive measures shall be performed as prescribed in the Preventive Maintenance Plan.

Record Keeping Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

D.1.7 Record Keeping Requirements

- (a) To document compliance with Condition D.1.2(e), the documentation file for each gasoline tank truck shall be updated at least once per year to reflect current test results as determined by Method 27. This documentation shall include, as a minimum, the following:

- (1) Test title: Gasoline Delivery Tank Pressure Test - EPA Reference Method 27
- (2) Tank owner and address
- (3) Tank identification number
- (4) Testing location
- (5) Date of test
- (6) Tester name and signature

- (7) Witnessing inspector, if any: Name, signature, and affiliation
 - (8) Test results: Actual pressure change in 5 minutes, mm of water (average for 2 runs).
 - (9) Records of repairs including the date of the repair, the type of repair, and the date of the retest.
- (b) To document compliance with Condition D.1.5, records of each monthly leak inspection shall be maintained. At a minimum, the following information shall be recorded:
 - (1) Date of inspection
 - (2) Findings (may indicate no leaks discovered; or location, nature, and severity of each leak).
 - (3) Leak determination method
 - (4) Corrective action (date each leak repaired; reasons for any repair interval in excess of 15 days).
 - (5) Inspector name and signature.
- (c) When the VRU is in operation, to document compliance with Condition D.1.6(a), the Permittee shall maintain a record of the carbon bed vacuum pressure during the regeneration cycle. This parameter shall be recorded at frequency not to exceed fifteen (15) minutes. Each scheduled workday, the Permittee shall record the maximum carbon bed temperature noted during the observed regeneration cycle, record the regeneration cycle time, and confirm the switching of beds. The Permittee shall also maintain a record of all corrective actions, which are implemented when the aforementioned parameters are outside of the ranges listed in Condition D.1.6(a).
- (d) When the VRU is not utilized during the loading of tank trucks, to document compliance with Condition D.1.2(b), the Permittee shall obtain a certification from the driver of each tank truck loaded. The certification shall include the following information: date, time, product being loaded, product loaded on the immediately previous shipment, name of the trucking firm or owner, phone number of the trucking firm or owner, printed name of the driver, and signature of the driver attesting to the accuracy of the information provided.
- (e) Records of the types of volatile petroleum liquid loaded, quantity of petroleum liquid loaded, and the maximum true vapor pressure of the liquid as loaded shall be maintained for a minimum of 36 months and made available upon request by IDEM, OAQ or HDEM. Alternatively, the Permittee may keep records indicating which storage tank was the source of the volatile petroleum liquid loaded, provided the type and true vapor pressure of the liquid in the storage tank is also recorded.
- (f) The Permittee shall maintain all records necessary to demonstrate compliance with the Preventive Maintenance Plan required by Condition D.1.3 and outline in Condition B.10.
- (g) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

SECTION D.2

FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-7-5(15)]: Storage Tanks

Four (4) petroleum liquid (gasoline, distillate, or denatured ethanol) storage tanks, identified as Storage Tanks Nos. 116, 154, 155, and 156. Tank specifications are as follows:

- (a) Storage Tank No. 116 is an open floater tank equipped with a geodesic dome. The floating roof is equipped with a mechanical shoe seal and rim mounted wiper secondary seal. The tank has a maximum capacity of 1,890,000 gallons. The tank was constructed in 1961.
- (b) Storage Tank No. 154 has an internal floating roof equipped with a mechanical shoe seal and rim mounted wiper secondary seal. The tank has a maximum capacity of 4,987,500 gallons. The tank was constructed in 1951.
- (c) Storage Tank No. 155 has an internal floating roof equipped with a mechanical shoe seal and rim mounted wiper secondary seal. The tank has a maximum capacity of 5,040,000 gallons. The tank was constructed in 1955.
- (d) Storage Tank No. 156 has an internal floating roof equipped with a mechanical shoe seal and rim mounted wiper secondary seal. The tank has a maximum capacity of 5,040,000 gallons. The tank was constructed in 1955.

(The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.2.1 Storage Vessels [326 IAC 8-9-4(a)]

Pursuant to 326 IAC 8-9-4(b), tanks 116, 154, 155, and 156 shall not store a volatile organic liquid (VOL) with a vapor pressure greater than or equal to eleven and one-tenth (11.1) psia as stored.

D.2.2 Storage Vessels [326 IAC 8-9-4(c)] [326 IAC 8-4-3(b)]

Pursuant to 326 IAC 8-9-4(c), tanks 116, 154, 155, and 156 shall be equipped with a fixed roof in combination with an internal floating roof meeting the following:

- (a) The internal floating roof shall float on the liquid surface (but not necessarily in complete contact with it) inside a storage vessel that has a fixed roof.
- (b) The internal floating roof shall be floating on the liquid surface at all times, except during initial fill and during those intervals when the storage tank is completely emptied and refilled.
- (c) When the roof is resting on the leg supports, the process of filling, emptying, or refilling shall be continuous and shall be accomplished as rapidly as possible.
- (d) Each internal floating roof shall be equipped with one (1) of the following closure devices between the wall of the vessel and the edge of the internal floating roof:
 - (1) A foam or liquid-filled seal mounted in contact with the liquid (liquid-mounted seal).
 - (2) Two (2) seals mounted one (1) above the other so that each forms a continuous closure that completely covers the space between the wall of the vessel and the edge of the internal floating roof. The lower seal may be vapor-mounted, but both must be continuous.
 - (3) A mechanical shoe seal that consists of a metal sheet held vertically against the wall of the storage vessel by springs or weighted levers and is connected by braces to the floating roof. A flexible coated fabric, or envelope, spans the annular space between the metal sheet and the floating roof.

- (e) The facility is maintained such that there are no visible holes, tears, or other openings in the seal or any seal fabric or materials.
- (f) Each opening in a noncontact internal floating roof except for automatic bleeder vents (vacuum breaker vents) and the rim space vents is to provide a projection below the liquid surface.
- (g) Each opening in the internal floating roof except for leg sleeves, automatic bleeder vents, rim space vents, column wells, ladder wells, sample wells, and stub drains is to be equipped with a cover or lid which is to be maintained in a closed position at all times (i.e.; no visible gap) except when the device is in actual use. The cover or lid shall be equipped with a gasket. Covers on each access hatch and automatic gauge float well shall be bolted except when they are in use.
- (h) Automatic bleeder vents shall be equipped with a gasket and are to be closed at all times when the roof is floating except when the roof is being floated off or is being landed on the roof leg supports.
- (i) Rim space vents shall be equipped with a gasket and are to be set to open only when the internal floating roof is not floating or at the manufacturer's recommended setting.
- (j) Each penetration of the internal floating roof for the purpose of sampling shall be a sample well. The sample well shall have a slit fabric cover that covers at least 90 percent of the opening.
- (k) Each penetration of the internal floating roof that allows for passage of a column supporting the fixed roof shall have a flexible fabric sleeve seal or a gasketed sliding cover.
- (l) Each penetration of the internal floating roof that allows for passage of a ladder shall have a gasketed sliding cover.

D.2.3 Preventive Maintenance Plan [326 IAC 2-7-5(13)]

A Preventive Maintenance Plan, in accordance with Section B - Preventive Maintenance Plan, of this permit, is required for these facilities.

Compliance Monitoring Requirements [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

D.2.4 Monitoring [326 IAC 8-9-5(b)]

Pursuant to 326 IAC 8-9-5(b), the owner or operator of tanks 116, 154, 155, and 156 shall:

- (a) Visually inspect the internal floating roof, the primary seal, and the secondary seal (if one is in service), prior to the filling of the storage vessel with VOL. If there are holes, tears, or other openings in the primary seal, the secondary seal, or the seal fabric or defects in the internal floating roof, or both, the Permittee shall repair the items before filling the storage vessel.
- (b) Visually inspect the internal floating roof, the primary seal, and the secondary seal (if one is in service) through manholes and roof hatches on the fixed roof at least once every 12 months after initial fill. If the internal floating roof is not resting on the surface of the VOL inside the storage vessel, or there is liquid accumulated on the roof, or the seal is detached, or there are holes or tears in the seal fabric, the Permittee shall repair the items or empty and remove the storage vessel from service within 45 days. If a failure that is detected in this paragraph cannot be repaired within 45 days and if the vessel cannot be emptied within 45 days, a 30-day extension may be requested from IDEM, OAQ and HDEM in the inspection report required in 40 CFR 60.115b(a)(3). Such a request for an extension must document that alternate storage capacity is unavailable and specify a schedule of actions that the company will take that will assure that the control equipment will be repaired or the vessel will be emptied as soon as possible.
- (c) Visually inspect the internal floating roof, the primary seal, and the secondary seal (if one is in service), gaskets, slotted membranes, and sleeve seals (if any) each time the storage vessel is emptied and

degassed. If the internal floating roof has defects, the primary seal has holes, tears, or other openings in the seal or the seal fabric or the secondary seal has holes, tears, or other openings in the seal or the seal fabric, or the gaskets no longer close off the liquid surfaces from the atmosphere, or the slotted membrane has more than 10 percent open area, the Permittee shall repair the items as necessary so that none of the conditions specified in this paragraph exist before refilling the storage vessel with VOL. In no event shall inspections conducted in accordance with this provision occur at intervals greater than 10 years.

- (d) Notify IDEM, OAQ and HDEM in writing at least 30 days prior to the filling or refilling of each storage vessel for which an inspection is required by paragraph (a) and (c) of this section to afford HDEM the opportunity to have an observer present. If the inspection required by (c) of this section is not planned and the Permittee could not have known about the inspection 30 days in advance of refilling the tank, the Permittee shall notify IDEM, OAQ and HDEM at least 7 days prior to the refilling of the storage vessel. Notification shall be made by telephone immediately followed by written documentation demonstrating why the inspection was unplanned. Alternatively, this notification including the written documentation may be made in writing and sent by express mail so that it is received by the IDEM, OAQ and HDEM at least 7 days prior to refilling.

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

D.2.5 Record Keeping Requirements

- (a) In accordance with 326 IAC 8-9-6(b) the owner or operator of tanks 116, 154, 155, and 156 shall maintain records of each vessel including the vessel identification number, dimensions, capacity, and a description of the emission control equipment shall be maintained for the life of the vessel.
- (b) In accordance with 326 IAC 8-9-6(c), a record of each inspection performed as required under Condition D.2.4 shall be maintained and shall identify the following:
 - (1) The vessel identification number
 - (2) The date of the inspection
 - (3) The observed condition of the seal, internal floating roof, and fittings.
- (c) Pursuant to 326 IAC 8-4-3(d), the Permittee shall maintain a record of the petroleum liquid or VOL stored in tanks 116, 154, 155, and 156, the period of storage, the maximum true vapor pressure of that liquid as stored, and the results of the inspections performed on the storage vessels.
- (d) The Permittee shall maintain all records necessary to demonstrate compliance with the Preventive Maintenance Plan required by Condition D.2.3 and outline in Condition B.10.
- (e) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

D.2.6 Reporting Requirements

A report of any defects (the internal floating roof is not resting on the surface of the VOL, or there is liquid accumulated on the roof, or the seal is detached, or there are holes or tears in the seal fabric) discovered during the annual inspection required in D.2.4 shall be furnished to the IDEM, OAQ and HDEM within thirty (30) days of the inspection. The report shall identify the vessel identification number, the nature of the defects, and the date the vessel was emptied or the nature of and date the repair was made.

SECTION D.3 FACILITY OPERATION CONDITIONS - INSIGNIFICANT ACTIVITIES

Facility Description [326 IAC 2-7-5(15)]: Insignificant Activities

Eighteen (18) liquid storage tanks, identified as Non Taxable Red Dye Diesel Tank A5, Heating Oil Tank O1, Heating Oil Tank G1, Heating Oil Tank G2, Storage Tank No. 37, Storage Tank No. 115, Storage Tank No. 152, Storage Tank No. 153, East Ethanol Tank E1, West Ethanol Tank E2, Generic Additive Tank A1, Diesel Additive Tank A2, Mobil Additive Tank A3, Additive Tank A4, Own Use Diesel Tank A6, Emergency Overfill Tank B1, Emergency Overfill Tank B2, and Emergency Overfill Tank B3. Tank specifications are as follows:

- (a) Non Taxable Red Dye Diesel Tank A5 is a horizontal fixed roof tank storing distillate dye additive with a maximum design capacity of 250 gallons. The tank was constructed in 1995.
- (b) Heating Oil Tank O1 is an underground, horizontal fixed roof tank storing No. 2 fuel oil with a maximum design capacity of 1,000 gallons. The tank was constructed in 1961.
- (c) Heating Oil Tank G1 is an underground, horizontal fixed roof tank storing No. 2 fuel oil with a maximum design capacity of 1,000 gallons. The tank was constructed in 1961.
- (d) Heating Oil Tank G2 is an underground, horizontal fixed roof tank storing No. 2 fuel oil with a maximum design capacity of 1,000 gallons. The tank was constructed in 1961.
- (e) Storage Tank No. 37 is a fixed cone roof tank storing wastewater with a maximum design capacity of 84,000 gallons. The tank was constructed in 1971.
- (f) Storage Tank No. 115 is a fixed cone roof tank storing distillates with a maximum design capacity of 1,617,927 gallons. The tank was constructed in 1961.
- (g) Storage Tank No. 152 is a fixed cone roof tank storing No. 2 fuel oil with a maximum design capacity of 5,040,000 gallons. The tank was constructed in 1951.
- (h) Storage Tank No. 153 is a fixed cone roof tank storing diesel RM fuel oil with a maximum design capacity of 5,040,000 gallons. The tank was constructed in 1951.
- (i) East Ethanol Tank E1 has an internal floating roof and stores denatured ethanol with a maximum design capacity of 30,000 gallons. The tank was constructed in 1982.
- (j) West Ethanol Tank E2 is a horizontal fixed roof tank storing denatured ethanol with a maximum design capacity of 30,000 gallons. The tank was constructed in 1982.
- (k) Generic Additive Tank A1 is a horizontal fixed roof tank storing additives with a maximum design capacity of 8,000 gallons. The tank was constructed in 1988.
- (l) Diesel Additive Tank A2 is a horizontal fixed roof tank storing additives with a maximum design capacity of 8,000 gallons. The tank was constructed in 1991.
- (m) Mobil Additive Tank A3 is a horizontal fixed roof tank storing additives with a maximum design capacity of 8,000 gallons. The tank was constructed in 1994.
- (n) Additive Tank A4 is a horizontal fixed roof tank storing additives with a maximum design capacity of 8,000 gallons. The tank was constructed in 1995.
- (o) Own Use Diesel Tank A6 is a horizontal fixed roof tank storing additives with a maximum design capacity of 6,000 gallons. The tank was constructed in 1994.
- (p) Emergency Overfill Tank B1 is an underground, horizontal fixed roof tank storing transmix with a maximum design capacity of 10,000 gallons. The tank was constructed in 1961.

(q) Emergency Overfill Tank B2 is an underground, horizontal fixed roof tank storing transmix with a maximum design capacity of 6,000 gallons. The tank was constructed in 1961.

(r) Emergency Overfill Tank B3 is an underground, horizontal fixed roof tank storing transmix with a maximum design capacity of 1,000 gallons. The tank was constructed in 1961.

(The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

D.3.1 Record Keeping Requirements

- (a) In accordance with 326 IAC 8-9-6(b) the owner or operator of tanks East Ethanol E1, West Ethanol E2, Generic Additive A1, Diesel Additive A2, Mobil Additive A3, Additive A4, Own Use Diesel A6, Non Taxable Red Dye Diesel A5, Emergency Overfill B1, Emergency Overfill B2, Emergency Overfill B3, Heating Oil O1, Heating Oil G1, and Heating Oil G2 shall maintain records of each vessel including the vessel identification number, dimensions, capacity, and a description of the emission control equipment shall be maintained for the life of the vessel.
- (b) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

D.3.2 Reporting Requirements

In accordance with 326 IAC 8-9-6(h), the owner or operator of tanks 37, 115, 152, and 153 shall maintain a record and notify the IDEM, OAQ and HDEM within thirty (30) days when the maximum true vapor pressure of the liquid exceeds seventy-five hundredths (0.75) psia.

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
and
HAMMOND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

PART 70 OPERATING PERMIT
CERTIFICATION**

Source Name: ExxonMobil Oil Corporation
Source Address: 1527 – 141st Street, Hammond, Indiana 46320
Mailing Address: same
Part 70 Permit No.: T089-15418-00233

**This certification shall be included when submitting monitoring, testing reports/results
or other documents as required by this permit.**

Please check what document is being certified:

- ☐ Annual Compliance Certification Letter
- ☐ Emergency/Deviation Occurrence Reporting Form
- ☐ Test Result (specify)
- ☐ Report (specify)
- ☐ Notification (specify)
- ☐ Other (specify)

I certify that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

Signature:

Printed Name:

Title/Position:

Date:

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE BRANCH**

**P.O. Box 6015
100 North Senate Avenue
Indianapolis, Indiana 46206-6015
Phone: 317-233-5674
Fax: 317-233-5967**

and

HAMMOND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

**5925 Calumet Avenue
Hammond, Indiana 46320
Phone: 219-853-6306
Fax: 219-853-6343**

**PART 70 OPERATING PERMIT
EMERGENCY OCCURRENCE REPORT**

Source Name: ExxonMobil Oil Corporation
Source Address: 1527 – 141st Street, Hammond, Indiana 46320
Mailing Address: same
Part 70 Permit No.: T089-15418-00233

This form consists of 2 pages

Page 1 of 2

<p>— This is an emergency as defined in 326 IAC 2-7-1(12)</p> <ul style="list-style-type: none">• The Permittee must notify the Office of Air Quality (OAQ) and the Hammond Department of Environmental Management (HDEM), within four (4) business hours (1-800-451-6027 or 317-233-5674, ask for Compliance Section) and (219-853-6306, for HDEM); and• The Permittee must submit notice in writing or by facsimile within two (2) working days (Facsimile Number: 317-233-5967, IDEM and 219-853-6343, HDEM), and follow the other requirements of 326 IAC 2-7- 16.

If any of the following are not applicable, mark N/A

Facility/Equipment/Operation:
Control Equipment:
Permit Condition or Operation Limitation in Permit:
Description of the Emergency:
Describe the cause of the Emergency:

If any of the following are not applicable, mark N/A

Page 2 of 2

Date/Time Emergency started:
Date/Time Emergency was corrected:
Was the facility being properly operated at the time of the emergency? Y N Describe:
Type of Pollutants Emitted: TSP, PM-10, SO ₂ , VOC, NO _x , CO, Pb, other:
Estimated amount of pollutant(s) emitted during emergency:
Describe the steps taken to mitigate the problem:
Describe the corrective actions/response steps taken:
Describe the measures taken to minimize emissions:
If applicable, describe the reasons why continued operation of the facilities are necessary to prevent imminent injury to persons, severe damage to equipment, substantial loss of capital investment, or loss of product or raw materials of substantial economic value:

Form Completed by:
Title/Position:
Date:
Phone:

A certification is not required for this report.

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE DATA SECTION
and
HAMMOND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT**

**PART 70 OPERATING PERMIT
QUARTERLY DEVIATION AND COMPLIANCE MONITORING REPORT**

Source Name: ExxonMobil Oil Corporation
Source Address: 1527 – 141st Street, Hammond, Indiana 46320
Mailing Address: same
Part 70 Permit No.: T089-15418-00233

Months: _____ to _____ Year: _____

Page 1 of 2

This report shall be submitted quarterly based on a calendar year. Any deviation from the requirements, the date(s) of each deviation, the probable cause of the deviation, and the response steps taken must be reported. A deviation required to be reported pursuant to an applicable requirement that exists independent of the permit, shall be reported according to the schedule stated in the applicable requirement and does not need to be included in this report. Additional pages may be attached if necessary. If no deviations occurred, please specify in the box marked "No deviations occurred this reporting period".	
<input type="checkbox"/> NO DEVIATIONS OCCURRED THIS REPORTING PERIOD.	
<input type="checkbox"/> THE FOLLOWING DEVIATIONS OCCURRED THIS REPORTING PERIOD	
Permit Requirement (specify permit condition #)	
Date of Deviation:	Duration of Deviation:
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	
Permit Requirement (specify permit condition #)	
Date of Deviation:	Duration of Deviation:
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	
Permit Requirement (specify permit condition #)	
Date of Deviation:	Duration of Deviation:
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	
Permit Requirement (specify permit condition #)	
Date of Deviation:	Duration of Deviation:
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	
Permit Requirement (specify permit condition #)	
Date of Deviation:	Duration of Deviation:
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	

Page 2 of 2

Permit Requirement (specify permit condition #)	
Date of Deviation:	Duration of Deviation:
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	
Permit Requirement (specify permit condition #)	
Date of Deviation:	Duration of Deviation:
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	
Permit Requirement (specify permit condition #)	
Date of Deviation:	Duration of Deviation:
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	

Form Completed by:
Title/Position:
Date:
Phone:

Attach a signed certification to complete this report.

**Indiana Department of Environmental Management
Office of Air Quality**

and

**Hammond Department of Environmental Management
Air Pollution Control Division**

Technical Support Document (TSD) for a
Part 70 Operating Permit Renewal

Source Background and Description

Source Name: ExxonMobil Oil Corporation
Source Location: 1527 – 141st Street, Hammond, Indiana 46320
County: Lake
SIC Code: 5171 Petroleum Bulk Terminal
Operation Permit No.: T089-15418-00233
Permit Reviewer: Thomas J. Nyhan, HDEM

The Hammond Department of Environmental Management (HDEM) has reviewed a Part 70 permit renewal application from ExxonMobil Oil Corporation relating to the operation of a **Petroleum Bulk Terminal Operation**.

Permitted Emission Units and Pollution Control Equipment

This stationary source consists of the following permitted emission units and pollution control devices:

- (a) One (1) Tank Truck Loading Operation, identified as LR-1, where gasoline, denatured ethanol, and distillates are bottom-loaded into transport trucks. Displaced hydrocarbon emissions are controlled by a John Zink Carbon Adsorption/Absorption Vapor Recovery Unit (VRU). The loading operation includes five (5) loading bays and has a maximum loading capacity of 144,000 gallons per hour. The loading facility was installed in 1961 and was modified in 1991. The VRU was installed in 1991.
- (b) Four (4) petroleum liquid (gasoline, distillate, or denatured ethanol) storage tanks, identified as tanks No. 116, 154, 155, and 156. Tank specifications are as follows:
 - (1) Storage Tank No. 116 is an open floater tank equipped with a geodesic dome. The floating roof is equipped with a mechanical shoe seal and rim mounted wiper secondary seal. The tank has a maximum capacity of 1,890,000 gallons. The tank was constructed in 1961.
 - (2) Storage Tank No. 154 has an internal floating roof equipped with a mechanical shoe seal and rim mounted wiper secondary seal. The tank has a maximum capacity of 4,987,500 gallons. The tank was constructed in 1951.
 - (3) Storage Tank No. 155 has an internal floating roof equipped with a mechanical shoe seal and rim mounted wiper secondary seal. The tank has a maximum capacity of 5,040,000 gallons. The tank was constructed in 1955.
 - (4) Storage Tank No. 156 has an internal floating roof equipped with a mechanical shoe seal and rim mounted wiper secondary seal. The tank has a maximum capacity of 5,040,000 gallons. The tank was constructed in 1955.

Unpermitted Emission Units and Pollution Control Equipment

There are no unpermitted facilities operating at this source during this review process.

New Emission Units and Pollution Control Equipment Receiving Advanced Source Modification Approval

The source is not seeking advanced source modification approval for new emission units.

Insignificant Activities

This stationary source also includes the following insignificant activities which are specifically regulated, as defined in 326 IAC 2-7-1(21):

- (a) The following storage tanks with capacities less than or equal to 1,000 gallons and annual throughputs less than 12,000 gallons.
 - (1) Non Taxable Red Dye Diesel Tank A5 is a horizontal fixed roof tank storing distillate dye additive with a maximum design capacity of 250 gallons. The tank was constructed in 1995.
 - (2) Heating Oil Tank O1 is an underground, horizontal fixed roof tank storing No. 2 fuel oil with a maximum design capacity of 1000 gallons. The tank was constructed in 1961.
 - (3) Heating Oil Tank G1 is an underground, horizontal fixed roof tank storing No. 2 fuel oil with a maximum design capacity of 1000 gallons. The tank was constructed in 1961.
 - (4) Heating Oil Tank G2 is an underground, horizontal fixed roof tank storing No. 2 fuel oil with a maximum design capacity of 1000 gallons. The tank was constructed in 1961.
- (b) The following storage tanks which emit less than one (1) ton per year of a single HAP and less than fifteen (15) pounds per day of VOC:
 - (1) Storage Tank No. 37 is a fixed cone roof tank storing wastewater with a maximum design capacity of 84,000 gallons. The tank was constructed in 1971.
 - (2) Storage Tank No. 115 is a fixed cone roof tank storing distillates with a maximum design capacity of 1,617,927 gallons. The tank was constructed in 1961.
 - (3) Storage Tank No. 152 is a fixed cone roof tank storing No. 2 fuel oil with a maximum design capacity of 5,040,000 gallons. The tank was constructed in 1951.
 - (4) Storage Tank No. 153 is a fixed cone roof tank storing diesel RM fuel oil with a maximum design capacity of 5,040,000 gallons. The tank was constructed in 1951.
 - (5) East Ethanol Tank E1 has an internal floating roof and stores denatured ethanol with a maximum design capacity of 30,000 gallons. The tank was constructed in 1982.
 - (6) West Ethanol Tank E2 is a horizontal fixed roof tank storing denatured ethanol with a maximum design capacity of 30,000 gallons. The tank was constructed in 1982.
 - (7) Generic Additive Tank A1 is a horizontal fixed roof tank storing additives with a maximum design capacity of 8,000 gallons. The tank was constructed in 1988.
 - (8) Diesel Additive Tank A2 is a horizontal fixed roof tank storing additives with a maximum design capacity of 8,000 gallons. The tank was constructed in 1991.
 - (9) Mobil Additive Tank A3 is a horizontal fixed roof tank storing additives with a maximum design capacity of 8,000 gallons. The tank was constructed in 1994.

- (10) Additive Tank A4 is a horizontal fixed roof tank storing additives with a maximum design capacity of 8,000 gallons. The tank was constructed in 1995.
 - (11) Own Use Diesel Tank A6 is a horizontal fixed roof tank storing additives with a maximum design capacity of 6,000 gallons. The tank was constructed in 1994.
 - (12) Emergency Overfill Tank B1 is an underground, horizontal fixed roof tank storing transmix with a maximum design capacity of 10,000 gallons. The tank was constructed in 1961.
 - (13) Emergency Overfill Tank B2 is an underground, horizontal fixed roof tank storing transmix with a maximum design capacity of 6,000 gallons. The tank was constructed in 1961.
 - (14) Emergency Overfill Tank B3 is an underground, horizontal fixed roof tank storing transmix with a maximum design capacity of 1000 gallons. The tank was constructed in 1961.
- (c) A laboratory as defined in 326 IAC 2-7-1(21)(D).
 - (d) Space heaters, process heaters, or boilers using the following fuels. Fuel oil-fired combustion sources with heat input equal to or less than two million (2,000,000) Btu per hour and firing fuel containing less than five-tenths (0.5) percent sulfur by weight.
 - (e) A petroleum fuel, other than gasoline, dispensing facility, having a storage capacity of less than or equal to 10,500 gallons, and dispensing less than or equal to 230,000 gallons per month. (Own use fueling ExxonMobil vehicles only).
 - (f) Equipment used to collect any material that might be released during a malfunction, process upset, or spill cleanup. The equipment includes: catch tanks, temporary liquid separators, tanks, and fluid handling equipment.

Existing Approvals

The source has been operating under the previous approvals including, but not limited to:

- (a) Part 70 Operating Permit T089-7786-00233, issued on December 30, 1997.
- (b) First Administrative Amendment 089-9895-00233, issued on August 14, 1998, (addition of date of submittal of revised ERP – June 1, 1998).
- (c) First Minor Source Modification 089-12342-00233, issued on July 12, 2000, (addition of internal floating roof with seals to Storage Tank 115). This change was never implemented.
- (d) First Minor Permit Modification 089-12382-00233, issued on August 29, 2000, (addition of internal floating roof with seals to Storage Tank 115).
- (e) Second Administrative Amendment 089-14527-00233, issued on July 27, 2001, (name change).

All conditions from previous approvals were incorporated into this Part 70 permit renewal.

Enforcement Issue

There are no enforcement actions pending.

Recommendation

The staff recommends to the Commissioner that the Part 70 permit renewal be approved. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant.

An administratively complete Part 70 permit renewal application for the purposes of this review was received on March 27, 2002.

Emission Calculations

See Appendix A of this document for detailed emissions calculations (sixty-one (61) pages).

Potential To Emit

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as “the maximum capacity of a stationary source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U. S. EPA.”

The source was issued a Part 70 Operating Permit on December 30, 1997. The table below summarizes the potential to emit, reflecting all limits, of the emission units. Any control equipment is considered enforceable only after issuance of the original Part 70 operating Permit and only to the extent that the effect of the control equipment is made practically enforceable in the permit.

Process/facility	Potential to Emit (tons/year)						
	PM	PM-10	SO ₂	VOC	CO	NO _x	HAPs
Tank Truck Load Racks	NA	NA	NA	44	NA	NA	2.3
Four (4) IFR Storage Tanks	NA	NA	NA	28	NA	NA	1.5
Insignificant Activities	NA	NA	NA	14	NA	NA	0.7
Total Emissions	-	-	-	86	-	-	4.5

The potential to emit (as defined in 326 IAC 2-1.1-1(16)) of volatile organic compounds (VOC) are equal to or greater than 25 tons per year and the source is located in Lake County. Therefore, the source is subject to the provisions of 326 IAC 2-7 – Part 70 Permit Program.

Actual Emissions

The following table shows the actual emissions from the source. This information reflects the 2002 OAQ emission data submitted by the source.

Pollutant	Actual Emissions (tons/year)
PM	0
PM-10	0
SO ₂	0
VOC	29.8
CO	0
NO _x	0
Total HAPs	1.3

County Attainment Status

The source is located in Lake County.

40 CFR 81.315 – (Indiana) – (7/1/00 Edition)	
Pollutant	Status
PM10	Attainment
PM2.5	Nonattainment
SO ₂	Primary Nonattainment
NO _x	Attainment
1-hour Ozone	Severe Nonattainment
8-hour Ozone	Moderate Nonattainment
CO	Maintenance Attainment
Lead	Attainment

- (a) Volatile organic compounds (VOC) and Nitrogen Oxides (NO_x) are regulated under the Clean Air Act (CAA) for the purposes of attaining and maintaining the National Ambient Air Quality Standards (NAAQS) for ozone.
- (1) On January 26, 1996 in 40 CFR 52.777(i), the U.S. EPA granted a waiver of the requirements of Section 182(f) of the CAA for Lake and Porter Counties, including the lower NO_x threshold for nonattainment new source review. Therefore, VOC emissions alone are considered when evaluating the rule applicability relating to the 1-hour ozone standards. Lake County has been designated as nonattainment in Indiana for the 1-hour ozone standard. Therefore, VOC emissions were reviewed pursuant to the requirements for Emission Offset, 326 IAC 2-3. See the State Rule Applicability for the source section.
- (2) VOC and NO_x emissions are considered when evaluating the rule applicability relating to the 8-hour ozone standard. Lake County has been designated as nonattainment for the 8-hour ozone standard. Therefore, VOC and NO_x emissions were reviewed pursuant to the requirements for nonattainment new source review.
- (b) Lake County has been classified as attainment in Indiana for PM10, CO, and Lead. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2. See the State Rule Applicability for the source section.
- (c) Lake County has been classified as nonattainment in Indiana for SO₂. Therefore, these emissions were reviewed pursuant to the requirements for Emission Offset, 326 IAC 2-3. See the State Rule Applicability for the source section.
- (d) U.S.EPA in Federal Register Notice 70 FR 943 dated January 5, 2005 has designated Lake County as nonattainment for PM2.5. On March 7, 2005 the Indiana Attorney General's Office on behalf of IDEM filed a law suit with the Court of Appeals for the District of Columbia Circuit challenging U.S. EPA's designation of non-attainment areas without sufficient data. However, in order to ensure that sources are not potentially liable for violation of the Clean Air Act, the OAQ is following the U.S. EPA's guidance to regulate PM10 emissions as surrogate for PM2.5 emissions pursuant to the Non-attainment New Source Review requirements. See the State Rule Applicability for the source section.

Part 70 Permit Conditions

This source is subject to the requirements of 326 IAC 2-7, pursuant to which the source has to meet the following:

- (a) Emission limitations and standards, including those operational requirements and limitations that assure compliance with all applicable requirements at the time of issuance of Part 70 permits.
- (b) Monitoring and related record keeping requirements which assure that all reasonable information is provided to evaluate continuous compliance with the applicable requirements.

Federal Rule Applicability

40 CFR 60 - New Source Performance Standards - NSPS

New Source Performance Standard, 326 IAC 12, (40 CFR 60.500 through 60.506, Subpart XX: Standards of Performance for Bulk Gasoline Terminals)

The loading rack LR-1 is subject to the requirements of 40 CFR 60, Subpart XX (Standards of Performance for Bulk Gasoline Terminals) because the loading rack was modified after December 17, 1980. Pursuant to the rule, the following requirements apply:

- (a) Each affected facility shall be equipped with a vapor collection system designed to collect the total organic compounds vapors displaced from tank trucks during product loading.
- (b) The emissions to the atmosphere from the vapor collection system due to the loading of liquid product into gasoline tank trucks are not to exceed thirty five (35) milligrams of total organic compounds per liter of gasoline loaded, except as noted in paragraph (c) of 40 CFR 60.602.
- (c) Each vapor collection system shall be designed to prevent any total organic compounds vapors collected at one loading rack from passing to another loading rack.
- (d) Loadings of liquid product into gasoline tank trucks shall be limited to vapor-tight gasoline tank trucks using the following procedures:
 - (1) The Permittee shall obtain the vapor tightness documentation described in 40 CFR 60.505(b) for each gasoline tank truck which is to be loaded at the affected facility.
 - (2) The Permittee shall cross-check each tank identification number obtained in paragraph (e)(2) of 40 CFR 60.502 with the file of tank vapor tightness documentation within 2 weeks after the corresponding tank is loaded.
 - (3) The Permittee shall notify the owner or operator of each nonvapor-tight gasoline tank truck loaded at the affected facility within 3 weeks after the loading has occurred.
 - (4) The Permittee shall take steps assuring that the nonvapor-tight gasoline tank truck will not be reloaded at the affected facility until vapor tightness documentation for that tank is obtained.
 - (5) Alternate procedures to those described in paragraphs (e)(1) through (5) of 40 CFR 60.502 for limiting gasoline tank truck loadings may be used upon application to, and approval by, the IDEM, OAQ.
- (e) The Permittee shall act to assure that loadings of gasoline tank trucks at the affected facility are made only into tanks equipped with vapor collection equipment that is compatible with the terminal's vapor collection system.
- (f) The Permittee shall act to assure that the terminal's and the tank truck's vapor collection systems are connected during each loading of a gasoline tank truck at the affected facility. Examples of actions to accomplish this include training drivers in the hookup procedures and posting visible reminder signs at the affected loading racks.
- (g) The vapor collection and liquid loading equipment shall be designed and operated to prevent gauge pressure in the delivery tank from exceeding 4,500 pascals (450 mm of water) during product loading. This level is not to be exceeded when measured by the procedures specified in 40 CFR 60.503(d).
- (h) No pressure-vacuum vent in the bulk gasoline terminal's vapor collection system shall begin to open at a system pressure less than 4,500 pascals (450 mm of water).

- (i) Each calendar month, the vapor collection system, the vapor processing system, and each loading rack handling gasoline shall be inspected during the loading of gasoline tank trucks for total organic compounds liquid or vapor leaks. For purposes of this paragraph, detection methods incorporating sight, sound, or smell are acceptable.

New Source Performance Standard, 326 IAC 12, (40 CFR 60.110 through 60.113, Subpart K: Standards of Performance for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After June 11, 1973 and Prior to May 19, 1978)

Tanks 37, 115, 116, 152, 153, 154, 155, 156, East Ethanol Tank E1, West Ethanol Tank E2, Generic Additive Tank A1, Diesel Additive Tank A2, Mobil Additive Tank A3, Additive Tank A4, Own Use Diesel Tank A6, Non Taxable Red Dye Diesel Tank A5, Heating Oil Tank O1, Heating Oil Tank G1, Heating Oil Tank G2, Emergency Overfill Tank B1, Emergency Overfill Tank B2, and Emergency Overfill Tank B3 are not subject to the rule because they were not constructed, reconstructed or modified between the aforementioned dates.

New Source Performance Standard, 326 IAC 12, (40 CFR 60.110a, Subpart Ka: Standards of Performance for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After May 18, 1978 and Prior to July 23, 1984)

Tanks 37, 115, 116, 152, 153, 154, 155, 156, Generic Additive Tank A1, Diesel Additive Tank A2, Mobil Additive Tank A3, Additive Tank A4, Own Use Diesel Tank A6, Non Taxable Red Dye Diesel Tank A5, Heating Oil Tank O1, Heating Oil Tank G1, Heating Oil Tank G2, Emergency Overfill Tank B1, Emergency Overfill Tank B2, and Emergency Overfill Tank B3 are not subject to the rule because they were not constructed, reconstructed or modified between the aforementioned dates. The East Ethanol Tank E1 and West Ethanol Tank E2 were constructed between the aforementioned dates but are not subject to the rule because they have capacities less than 40,000 gallons.

New Source Performance Standard, 326 IAC 12, (40 CFR 60.110b, Subpart Kb: Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification commenced After July 23, 1984)

Tanks 37, 115, 116, 152, 153, 154, 155, 156, East Ethanol Tank E1, West Ethanol Tank E2, Heating Oil Tank O1, Heating Oil Tank G1, Heating Oil Tank G2, Emergency Overfill Tank B1, Emergency Overfill Tank B2, and Emergency Overfill Tank B3 are not subject to the rule because they were not constructed, reconstructed or modified after July 23, 1984. Although the following storage vessels, Generic Additive Tank A1, Diesel Additive Tank A2, Own Use Diesel Tank A6, Mobil Additive Tank A3, Non Taxable Red Dye Diesel Tank A5, and Additive Tank A4 were constructed after July 23, 1984, these facilities are not subject to the requirements of this rule because their capacities do not meet the rule applicability level of 75 m³.

40 CFR 61 - National Emission Standards for Hazardous Air Pollutants - NESHAPS

National Emission Standards for Hazardous Air Pollutants, 326 IAC 14, (40 CFR 61.300, Subpart BB: National Emission Standard for Benzene Emissions From Benzene Transfer Operations)

This source is not subject to the requirements of 40 CFR 61, Subpart BB (National Emission Standard for Benzene Emissions from Benzene Transfer Operations) because loading racks loading only gasoline are exempted and the weight percent of benzene in the liquid loaded at this source is less than seventy weight percent (70%) benzene.

40 CFR 63 - National Emission Standards for Hazardous Air Pollutants - NESHAPS

326 IAC 20, (40 CFR Part 63.420, Subpart R, National Emission Standards for Gasoline Terminals and Pipeline Breakout Stations)

This source is not subject to the requirements for Hazardous Air Pollutants, 326 IAC 20, (40 CFR Part 63.420, Subpart R) because it is not a Major Source as defined in 40 CFR 63.2, Subpart A. This source is not a stationary source that has the potential to emit considering controls, in the aggregate, 10 tons per year or more of any hazardous air pollutant or 25 tons per year or more of any combination of hazardous air pollutants.

40 CFR 64 - Compliance Assurance Monitoring

This source is subject to the provisions of 40 CFR 64, Compliance Assurance Monitoring (CAM). In order for this rule to apply, a specific emissions unit must meet three criteria for a given pollutant: 1) the unit is subject to an emission limitation or standard for the applicable regulated air pollutant, 2) the unit uses a control device to achieve compliance with any such emission limitation or standard, and, 3) the unit has potential pre-control device emissions of the applicable regulated air pollutant that are equal to or greater than one hundred (100) percent of the amount required for a source to be classified as a major source. The loading rack has the potential to emit greater than one hundred (100) tons per twelve (12) consecutive month period of VOC, is subject to a VOC emission rate pursuant to 40 CFR 60, Subpart XX (Standards of Performance for Bulk Gasoline Terminals), and uses a control device to comply with this limit. The loading rack is, therefore, subject to the requirements of CAM. Since the controlled potential to emit of the loading rack is greater than 25 tons per year, it is considered a large CAM unit and will be monitored at least four (4) times per hour. This monitoring will be in accordance with the plan submitted on July 19, 2004.

State Rule Applicability - Entire Source

326 IAC 1-5-2 (Emergency Reduction Plans)

The source submitted an Emergency Reduction Plan (ERP) on February 4, 1991. The ERP has been verified to fulfill the requirements of 326 IAC 1-5-2 (Emergency Reduction Plans).

326 IAC 1-6-3 (Preventive Maintenance Plan)

The source has submitted a Preventive Maintenance Plan (PMP) on March 26, 1997. This PMP has been verified to fulfill the requirements of 326 IAC 1-6-3 (Preventive Maintenance Plan).

326 IAC 1-6 (Malfunction)

This rule requires that a record be kept of all malfunctions, including startups or shutdowns of any facility or emission control equipment which result in violations of applicable air pollution control regulations or applicable emission limitations and such records shall be retained for a period of three (3) years and shall be made available to the commissioner upon request. When a malfunction of any facility or emission control equipment occurs which lasts more than one (1) hour, said condition shall be reported to the commissioner or his appointed representative. The source shall record all the malfunctions that result in violation of applicable requirements and limitations. These records shall be retained for three years. If a malfunction lasts more than one hour, the condition shall be reported to the IDEM, OAQ and HDEM per requirements in 326 IAC 1-6-2.

326 IAC 2-2 (PSD Requirements)

This source, built in 1951, is a major stationary source for the purpose of PSD because it has the potential to emit VOCs at a rate of 25 TPY or more and it is located in Lake County. Also, it is one of the 28 listed source categories. The source has not been reviewed under the requirements 326 IAC 2-2 because it was in existence prior to the finalization of the rule in 1977 and there has not been a major modification, as defined in this rule, subject to the requirements of 326 IAC 2-2.

326 IAC 2-3 (Emission Offset)

This source, built in 1951, is a major stationary source for the purpose of Emission Offset because it has the potential to emit VOCs at a rate of 25 TPY or more and it is located in Lake County. The source has not been reviewed under the requirements of 326 IAC 2-3 because it was in existence prior to the finalization of the rule and there has not been a major modification, as defined in this rule, subject to the requirements of 326 IAC 2-3.

326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants)

This source is not subject to the requirements of 326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants) because no major sources of HAPs were constructed or reconstructed after July 27, 1997.

326 IAC 2-6 (Emissions Reporting)

Since this source is required to have an operating permit under 326 IAC 2-7, Part 70 Permit Program, this source is subject to 326 IAC 2-6 (Emission Reporting). In accordance with the compliance schedule in 326 IAC 2-6-3, an emission statement must be submitted triennially by July 1 beginning in 2007 and every 3 years after. This source which is located in Lake County also has potential to emit greater than or equal to 25 tons of VOC; therefore, an emission statement covering the previous calendar year must be submitted by July 1 of any year that the source is not already required to submit a statement if the source emits VOC into the ambient air at levels equal to or greater than 25 tpy. The emission statement shall contain, at a minimum, the information specified in 326 IAC 2-6-4.

326 IAC 5-1 (Opacity Limitations)

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Alternative Opacity Limitations), opacity shall meet the following, unless otherwise stated in the permit:

- (a) Opacity shall not exceed an average of twenty percent (20%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
- (b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

326 IAC 6-1 (Particulate Matter and PM10 Emissions Limitations)

This source is located in a particulate matter non-attainment area of Lake County, however, no facilities are specifically listed in 326 IAC 6-1-10.1. In addition, this source does not have the potential to emit one hundred (100) tons or more of particulate matter per year or have actual emissions of ten (10) tons or more of particulate matter per year. Therefore, pursuant to 326 IAC 6-1-1, the requirements of this rule do not apply.

326 IAC 6-1-11.1 (Lake County Fugitive Particulate Matter)

This source is not subject to 326 IAC 6-1-11.1 for fugitive dust control requirements because they do not have facilities or operations that have the potential to emit five (5) tons per year of fugitive particulate matter into the atmosphere in Lake County.

326 IAC 6-4 (Fugitive Dust Emissions)

This source is subject to 326 IAC 6-4 because it is a source of fugitive dust. Pursuant to this rule, fugitive particulate matter emissions shall not be visible crossing the property lines. No violations of this rule have been observed at this source.

326 IAC 6-5 (Fugitive Particulate Matter Emission Limitations)

This source is not subject to 326 IAC 6-5 because it does not have potential fugitive particulate emissions of twenty-five (25) tons per year or more and it is not a new source of fugitive particulate matter constructed after December 13, 1985.

326 IAC 8-4-2 (Petroleum Sources - Petroleum Refineries)

326 IAC 8-4-2 (Petroleum Sources - Petroleum Refineries) does not apply to this source because this source is not a petroleum refinery. This source just stores petroleum compounds.

326 IAC 8-4-5 (Petroleum Sources - Bulk Gasoline Plants)

326 IAC 8-4-5 (Petroleum Sources - Bulk Gasoline Plants) does not apply to this source even though it is located in Lake County which is listed in the applicability of this rule because this source is not a bulk gasoline plant. This source just stores petroleum compounds.

326 IAC 8-4-6 (Gasoline Dispensing Facilities)

326 IAC 8-4-6 (Gasoline Dispensing Facilities) does not apply to this source even though it is located in Lake County which is listed in the applicability of this rule because this source does not dispense gasoline into motor vehicle fuel tanks or portable containers. This source dispenses gasoline into trucks which transport the gasoline to various gasoline dispensing facilities.

326 IAC 8-4-7 (Petroleum Sources - Gasoline Transports)

326 IAC 8-4-7 (Petroleum Sources - Gasoline Transports) does not apply to this source even though the source is in Lake County which is listed in the applicability of this rule because this source does not transport gasoline. This source just stores petroleum compounds.

326 IAC 8-4-8 (Petroleum Sources - Leaks from Petroleum Refineries; Monitoring; Reports)

326 IAC 8-4-8 (Petroleum Sources - Leaks from Petroleum Refineries; Monitoring; Reports) does not apply to this source even though the source is in Lake County which is listed in the applicability of this rule because this source is not a Petroleum Refinery. This source just stores petroleum compounds.

326 IAC 8-7 (Specific VOC Reduction Requirements for Lake, Porter, Clark, and Floyd Counties)

This rule applies to stationary sources located in Lake, Porter, Clark, or Floyd County that emit or have the potential to emit volatile organic compounds (VOCs) at levels equal to or greater than twenty-five (25) tons per year (tpy) in Lake County. In accordance with 326 IAC 8-7-2(a)(3)(C) and (Q), volatile organic liquid storage facilities, are not "affected facilities" and should not be considered in determining the applicability to this rule. Therefore, this source is not subject to the requirements of this rule.

State Rule Applicability - Individual Facilities

326 IAC 7-1.1 (Sulfur Dioxide Emission Limitations)

The source is not subject to 326 IAC 7-1.1 because none of the facilities have the potential to emit twenty-five (25) tons per year or ten (10) pounds per hour of sulfur dioxide. Therefore, pursuant to 326 IAC 7-1.1-1, the requirements of 326 IAC 7-1.1 and 7.2 do not apply.

326 IAC 8-1-6 (New Facilities; General Reduction Requirements)

This rule applies to facilities located anywhere in the state that were constructed on or after January 1, 1980, and which have potential volatile organic compound (VOC) emissions of 25 tons per year or more. This source is not subject to 326 IAC 8-1-6 because none of the facilities constructed after January 1, 1980 have potential VOC emissions of 25 tons per year or more.

Tank Truck Loading Facility

326 IAC 8-4-4 (Bulk Gasoline Terminals)

326 IAC 8-4-4 (Petroleum Sources - Bulk Gasoline Terminals) applies to this source because this source is a bulk gasoline terminal and this source is located in Lake County which is listed in the applicability of this rule. Pursuant to this rule, no owner or operator of a bulk gasoline terminal shall permit the loading of gasoline into any transport, excluding railroad tank cars, or barges, unless:

- (a) The bulk gasoline terminal is equipped with a vapor control system, in good working order, in operation and consisting of one of the following:
 - (1) An adsorber or condensation system which processes and recovers vapors and gases from the equipment being controlled, releasing no more than 80 mg/l of VOC to the atmosphere.
 - (2) A vapor collection system which directs all vapors to a fuel gas system or incinerator.
 - (3) An approved control system, demonstrated to have control efficiency equivalent to or greater than clause (1) above.
- (b) Displaced vapors and gases are vented only to the vapor control system.
- (c) A means is provided to prevent liquid drainage from the loading device when it is not in use or to accomplish complete drainage before the loading device is disconnected.
- (d) All loading and vapor lines are equipped with fittings which make vapor-tight connections and which will be closed upon disconnection.

- (e) If employees of the owner of the bulk gasoline terminal are not present during loading, it shall be the responsibility of the owner of the transport to make certain the vapor control system is attached to the transport. The owner of the terminal shall take all reasonable steps to insure that owners of transports loading at the terminal during unsupervised times comply with this section.

326 IAC 8-4-9 (Petroleum Sources - Leaks from Transports and Vapor Collection Systems; Records)

326 IAC 8-4-9 (Petroleum Sources - Leaks from Transports and Vapor Collection Systems; Records) applies to this source because the source is in Lake County which is listed in the applicability of this rule and section 4 of this rule applies to this source. Pursuant to this rule:

- (a) The Permittee shall not allow any gasoline transport that is subject to 326 IAC 8-4-9 and has a capacity of 2000 gallons or more, to be filled or emptied unless the gasoline transport completes the following:
 - (1) Is tested annually according to test procedures consistent with Appendix A of "Control of Organic Compound Leaks from Gasoline Tank Trucks or and Vapor Collection Systems", EPA-450/2-78-051, or equivalent procedure approved by the Commissioner.
 - (2) Sustains a pressure change of no more than seven hundred and fifty (750) Pascals (three (3) inches of water) in five (5) minutes when pressurized to a gauge pressure of four thousand five hundred (4,500) Pascals (eighteen (18) inches of water) or evacuated to a gauge pressure of one thousand five hundred (1,500) Pascals (six (6) inches of water) during the testing required subdivision (1).
 - (3) Is repaired by the owner or operator and retested within fifteen (15) days of testing if it does not meet the criteria of subdivision (2).
 - (4) Displays a sticker that shows the date that the gasoline tank truck last passed the test required in subdivisions (1) through (2). Such sticker shall be displayed near the Department of Transportation Certification Plate required by 49 CFR 178.340-10b.
- (b) The Permittee shall operate the vapor control system and the gasoline loading rack in a manner that prevents:
 - (1) Gauge pressure from exceeding four thousand five hundred (4,500) pascals (eighteen (18) inches of water) and a vacuum from exceeding one thousand five hundred (1,500) Pascals (six (6) inches of water) in the gasoline tank truck.
 - (2) A reading equal to or greater than one hundred percent (100%) of the lower explosive limit (LEL, measured as propane) at two and five-tenths (2.5) centimeters from all points on the perimeter of a potential leak source when measured by the method referenced in Appendix B of "Control of Organic Compound Leaks from Gasoline Tank Trucks and Vapor Collection Systems", EPA 450/2-78-051, or an equivalent procedure approved by the Commissioner during loading or unloading operations at gasoline dispensing facilities, bulk plants, and bulk terminals.
 - (3) Avoidable visible liquid leaks during loading or unloading operations at gasoline dispensing facilities, bulk plants, and bulk terminals.
- (c) The Permittee shall repair and retest a vapor collection or control system that exceeds the limits in condition (b) within fifteen (15) days.

Storage Tanks

326 IAC 8-4-3 (Petroleum Liquid Storage Facilities)

- (a) 326 IAC 8-4-3 does not apply to the East Ethanol Tank E1, West Ethanol Tank E2, Generic Additive Tank A1, Diesel Additive Tank A2, Mobil Additive Tank A3, Additive Tank A4, Own Use Diesel Tank A6, Non Taxable Red Dye Diesel Tank A5, Heating Oil Tank O1, Heating Oil Tank G1, Heating Oil Tank G2,

Emergency Overfill Tank B1, Emergency Overfill Tank B2, or Emergency Overfill Tank B3 even though they are located in Lake County which is listed in the applicability of this rule because they do not have capacities greater than thirty-nine thousand (39,000) gallons.

- (b) 326 IAC 8-4-3 does not apply to tanks 37, 115, 152, or 153 even though they are located in Lake County which is listed in the applicability of this rule and have capacities greater than thirty-nine thousand (39,000) gallons because the true vapor pressure of the volatile organic compounds stored in these tanks is less than 1.52 psia.
- (c) 326 IAC 8-4-3 applies to Tanks 116, 154, 155, and 156, because these tanks are located in Lake County which is listed in the applicability of this rule, have capacities greater than thirty-nine thousand (39,000) gallons, and store volatile organic compounds with true vapor pressures greater than 1.52 psia. All of the aforementioned tanks are internal floating roof tanks and are, therefore, subject to 326 IAC 8-4-3(b). Pursuant to 326 IAC 8-4-3(b), no owner or operator of an affected fixed roof tank shall permit the use of such facility unless:
 - (1) The facility has been retrofitted with an internal floating roof equipped with a closure seal, or seals, to close the space between the roof edge and tank wall unless the source has been retrofitted with equally effective alternative control which has been approved.
 - (2) The facility is maintained such that there are no visible holes, tears, or other openings in the seal or any seal fabric or materials.
 - (3) All openings, except stub drains, are equipped with covers, lids, or seals such that:
 - (A) The cover, lid, or seal is in the closed position at all times except when in actual use;
 - (B) Automatic bleeder vents are closed at all times except when the roof is floated off or landed on the roof leg supports;
 - (C) Rim vents, if provided, are set to open when the roof is being floated off the roof leg supports or at the manufacturer's recommended setting.

326 IAC 8-9 (Volatile Organic Liquid Storage Vessels)

- (a) Pursuant to 326 IAC 8-9-4(a), Storage Tanks 37, 115, 152, 153, 157, and 158 are not subject to the standards in 326 IAC 8-9-4 because the maximum true vapor pressure of the VOL stored in the tanks is less than seventy-five hundredths (0.75) psia. Pursuant to 326 IAC 8-9-6(h), a record of the maximum true vapor pressure of the liquid in Storage Tanks 37, 115, 152, 153, 157, and 158 shall be maintained and the department shall be notified within thirty (30) days of when the maximum true vapor pressure of the liquid exceeds seventy-five hundredths (0.75) psia.
- (b) The East Ethanol Tank E1, West Ethanol Tank E2, Generic Additive Tank A1, Diesel Additive Tank A2, Mobil Additive Tank A3, Additive Tank A4, Own Use Diesel Tank A6, Non Taxable Red Dye Diesel Tank A5, Heating Oil Tank O1, Heating Oil Tank G1, Heating Oil Tank G2, Emergency Overfill Tank B1, Emergency Overfill Tank B2, and Emergency Overfill Tank B3 are only subject to 326 IAC 8-9-6(a) and 326 IAC 8-9-6(b) only because they are volatile organic liquid storage vessels with capacities less than thirty-nine thousand (39,000) gallons.
 - (1) Pursuant to 326 IAC 8-9-6(b), the owner or operator of these tanks shall maintain records of each vessel including the vessel identification number, dimensions, capacity, and a description of the emission control equipment shall be maintained for the life of the vessel.
 - (2) Pursuant to 326 IAC 8-9-6(a), the owner or operator of these tanks shall maintain the aforementioned records for the life of the vessels.

- (c) 326 IAC 8-9 applies to tanks 116, 154, 155, and 156 because they are located in Lake County, store volatile organic liquid and have capacities in excess of thirty-nine thousand (39,000) gallons. The source has chosen to comply with 326 IAC 8-9-4(a) by installing an internal floating roof meeting the standards in 326

IAC 8-9-4(c). 326 IAC 8-9-4(d) and (e) are not applicable because they apply to tanks equipped with closed vent systems and external floating roofs, respectively. 326 IAC 326 IAC 8-9-4(b) is not applicable to these tanks because the maximum true vapor pressure of the VOL stored in these tanks is less than eleven and one-tenth (11.1) psia. Pursuant to 326 IAC 9-9-4(c), these tanks shall be equipped with a fixed roof in combination with an internal floating roof meeting the following:

- (1) The internal floating roof shall float on the liquid surface (but not necessarily in complete contact with it) inside a storage vessel that has a fixed roof.
- (2) The internal floating roof shall be floating on the liquid surface at all times, except during initial fill and during those intervals when the storage tank is completely emptied and refilled.
- (3) When the roof is resting on the leg supports, the process of filling, emptying, or refilling shall be continuous and shall be accomplished as rapidly as possible.
- (4) Each internal floating roof shall be equipped with one (1) of the following closure devices between the wall of the vessel and the edge of the internal floating roof:
 - (A) A foam or liquid-filled seal mounted in contact with the liquid (liquid-mounted seal).
 - (B) Two (2) seals mounted one (1) above the other so that each forms a continuous closure that completely covers the space between the wall of the vessel and the edge of the internal floating roof. The lower seal may be vapor-mounted, but both must be continuous.
 - (C) A mechanical shoe seal that consists of a metal sheet held vertically against the wall of the storage vessel by springs or weighted levers and is connected by braces to the floating roof. A flexible coated fabric, or envelope, spans the annular space between the metal sheet and the floating roof.
- (5) Each opening in a noncontact internal floating roof except for automatic bleeder vents (vacuum breaker vents) and the rim space vents is to provide a projection below the liquid surface.
- (6) Each opening in the internal floating roof except for leg sleeves, automatic bleeder vents, rim space vents, column wells, ladder wells, sample wells, and stub drains is to be equipped with a cover or lid which is to be maintained in a closed position at all times (i.e.; no visible gap) except when the device is in actual use. The cover or lid shall be equipped with a gasket. Covers on each access hatch and automatic gauge float well shall be bolted except when they are in use.
- (7) Automatic bleeder vents shall be equipped with a gasket and are to be closed at all times when the roof is floating except when the roof is being floated off or is being landed on the roof leg supports.
- (8) Rim space vents shall be equipped with a gasket and are to be set to open only when the internal floating roof is not floating or at the manufacturer's recommended setting.
- (9) Each penetration of the internal floating roof for the purpose of sampling shall be a sample well. The sample well shall have a slit fabric cover that covers at least 90 percent of the opening.
- (10) Each penetration of the internal floating roof that allows for passage of a ladder shall have a gasketed sliding cover.

326 IAC 12 (New Source Performance Standards)

The Generic Additive Tank A1, Diesel Additive Tank A2, Own Use Diesel Tank A6, Mobil Additive Tank A3, Non Taxable Red Dye Diesel Tank A5, and Additive Tank A4 are not subject to 40 CFR 60, Subpart Kb as the rule existed prior to October of 2003 because these tanks have storage capacities less than 40 m³ (10,566 gallons).

Testing Requirements

The John Zink Carbon Adsorption/Absorption Vapor Recovery Unit (VRU) for control of emissions from the Tank Truck Loading Facility (LR-1) is necessary and required to meet the Federal emission limit of 35 milligrams per liter of gasoline loaded. Therefore, a compliance test is required for this unit for each five (5) year permit term.

Compliance Requirements

Permits issued under 326 IAC 2-7 are required to ensure that sources can demonstrate compliance with applicable state and federal rules on a more or less continuous basis. All state and federal rules contain compliance provisions, however, these provisions do not always fulfill the requirement for a more or less continuous demonstration. When this occurs IDEM, OAQ, in conjunction with the source, must develop specific conditions to satisfy 326 IAC 2-7-5. As a result, compliance requirements are divided into two sections: Compliance Determination Requirements and Compliance Monitoring Requirements.

Compliance Determination Requirements in Section D of the permit are those conditions that are found more or less directly within state and federal rules and the violation of which serves as grounds for enforcement action. If these conditions are not sufficient to demonstrate continuous compliance, they will be supplemented with Compliance Monitoring Requirements, also Section D of the permit. Unlike Compliance Determination Requirements, failure to meet Compliance Monitoring conditions would serve as a trigger for corrective actions and not grounds for enforcement action. However, a violation in relation to a compliance monitoring condition will arise through a source's failure to take the appropriate corrective actions within a specific time period.

The compliance monitoring requirements applicable to this source are as follows:

Tank Truck Loading Facility

The loading rack has applicable compliance monitoring conditions as specified below:

- (a) When operating the VRU to control VOC emissions, the Permittee shall monitor and record the carbon bed vacuum pressure during the regeneration cycle. This parameter shall be recorded at a frequency not to exceed fifteen (15) minutes.

Each scheduled workday, the Permittee shall review the previous day(s) records of carbon bed vacuum pressure ensuring that vacuum pressure exceeded 25 inches of mercury in each regeneration cycle. On each scheduled workday the Permittee shall observe one regeneration cycle of each carbon bed, noting the maximum observed temperature on each carbon bed, verifying the switching of beds, and that subsequent regeneration cycles are nominally of 15 minutes in duration. The Compliance Response Plan for this unit shall contain troubleshooting, contingency and corrective actions for when the regeneration cycle exceeds fifteen (15) minutes, carbon bed temperature exceeds one hundred fifty degrees Fahrenheit (150°F), or carbon bed vacuum pressure during the regeneration cycle fails to exceed twenty-five (25) inches of mercury. Failure to take response steps in accordance with Section C - Compliance Response Plan - Preparation, Implementation, Records, and Reports, shall be considered a deviation from this permit.

- (b) Additional inspections and preventive measures shall be performed as prescribed in the Preventive Maintenance Plan.

These monitoring conditions are necessary because the carbon adsorber must operate properly to ensure compliance with 326 IAC 12, 40 CFR 60, Subpart XX (Standards of Performance for Bulk Gasoline Terminals), 326 IAC 2-2 (Prevention of Significant Deterioration), 40 CFR 52.21, 326 IAC 8-4-4 (Petroleum

Sources - Bulk Gasoline Terminals), 326 IAC 8-4-9 (Petroleum Sources - Leaks from Transports and Vapor Collection Systems), and 326 IAC 2-7 (Part 70).

Storage Tank Nos. 116, 154, 155, and 156:

Tanks 116, 154, 155, and 156 have applicable compliance monitoring conditions as specified below:

- (a) Visually inspect the internal floating roof, the primary seal, and the secondary seal (if one is in service), prior to the filling of the storage vessel with VOL. If there are holes, tears, or other openings in the primary seal, the secondary seal, or the seal fabric or defects in the internal floating roof, or both, the Permittee shall repair the items before filling the storage vessel.
- (b) Visually inspect the internal floating roof, the primary seal, and the secondary seal (if one is in service) through manholes and roof hatches on the fixed roof at least once every 12 months after initial fill. If the internal floating roof is not resting on the surface of the VOL inside the storage vessel, or there is liquid accumulated on the roof, or the seal is detached, or there are holes or tears in the seal fabric, the Permittee shall repair the items or empty and remove the storage vessel from service within 45 days. If a failure that is detected in this paragraph cannot be repaired within 45 days and if the vessel cannot be emptied within 45 days, a 30-day extension may be requested from IDEM, OAQ and HDEM in the inspection report required in 40 CFR 60.115b(a)(3). Such a request for an extension must document that alternate storage capacity is unavailable and specify a schedule of actions that the company will take that will assure that the control equipment will be repaired or the vessel will be emptied as soon as possible.
- (c) Visually inspect the internal floating roof, the primary seal, and the secondary seal (if one is in service), gaskets, slotted membranes, and sleeve seals (if any) each time the storage vessel is emptied and degassed. If the internal floating roof has defects, the primary seal has holes, tears, or other openings in the seal or the seal fabric or the secondary seal has holes, tears, or other openings in the seal or the seal fabric, or the gaskets no longer close off the liquid surfaces from the atmosphere, or the slotted membrane has more than 10 percent open area, the Permittee shall repair the items as necessary so that none of the conditions specified in this paragraph exist before refilling the storage vessel with VOL. In no event shall inspections conducted in accordance with this provision occur at intervals greater than 10 years.
- (d) Notify HDEM in writing at least 30 days prior to the filling or refilling of each storage vessel for which an inspection is required by paragraph (a) and (c) of this section to afford HDEM the opportunity to have an observer present. If the inspection required by (c) of this section is not planned and the Permittee could not have known about the inspection 30 days in advance of refilling the tank, the Permittee shall notify HDEM at least 7 days prior to the refilling of the storage vessel. Notification shall be made by telephone immediately followed by written documentation demonstrating why the inspection was unplanned. Alternatively, this notification including the written documentation may be made in writing and sent by express mail so that it is received by the HDEM at least 7 days prior to refilling.

These monitoring conditions are necessary because the tanks must be in good condition to ensure compliance with 326 IAC 8-9-5(b) and 326 IAC 2-7 (Part 70).

Conclusion

The operation of this Petroleum Bulk Terminal Operation shall be subject to the conditions of the attached proposed **Part 70 Permit Renewal No. T089-15418-00233**.

**Indiana Department of Environmental Management
Office of Air Quality**

and

Hammond Department of Environmental Management

**Addendum to the
Technical Support Documents for a Part 70 Operating Permit Renewal**

Source Name: ExxonMobil Oil Corporation
Source Location: 1527 – 141st Street, Hammond, Indiana 46320
County: Lake
SIC Code: 5171 Petroleum Bulk Terminal
Operation Permit No.: T089-15418-00233
Permit Reviewer: Thomas J. Nyhan, HDEM

On May 4, 2005, the Hammond Department of Environmental Management (HDEM) had a notice published in the Hammond Times, Hammond, Indiana, stating that ExxonMobil Oil Corporation had applied for the renewal of a Part 70 Operating Permit to operate a petroleum bulk terminal. The notice also stated that the HDEM proposed to issue a permit for this operation and provided information on how the public could review the proposed permit and other documentation. Finally, the notice informed interested parties that there was a period of thirty (30) days to provide comments on whether or not this permit should be issued as proposed.

On May 10, 2005, a comment was received from the U.S. EPA. Due to this comment, the HDEM has decided to make the following revisions to the permit (highlighted language has been added, the language with a line through it has been deleted).

Comment:

Conditions 1.8, 3.1 and 3.2: It is suggested that the conditions stating that there are no reporting requirements, emission limitations or specific compliance monitoring requirements be removed from the permit.

Revisions:

Page 3, Table of Contents:

D.1 FACILITY OPERATION CONDITIONS - Tank Truck Loading Operation LR-1

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Emission Limitations and Standards [326 IAC 2-7-5(1)]

- D.1.1 General Provisions Relating to NSPS [326 IAC 12-1] [40 CFR 60, Subpart A]
- D.1.2 Volatile Organic Compound (VOC) [326 IAC 12] [40 CFR 60, Subpart XX] [326 IAC 8-4-4]
[326 IAC 8-4-9]
- D.1.3 Preventive Maintenance Plan [326 IAC 2-7-5(13)]

Compliance Determination Requirements

- D.1.4 Testing Requirements [326 IAC 2-7-6(1)]
- D.1.5 Inspection Requirements [40 CFR 60, Subpart XX]

Compliance Monitoring Requirements [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

D.1.6 Monitoring [40 CFR 64]

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

D.1.7 Record Keeping Requirements

D.1.8 Reporting Requirements

Page 4, Table of Contents:

D.3 FACILITY OPERATION CONDITIONS - INSIGNIFICANT ACTIVITIES

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~~Emission Limitations and Standards [326 IAC 2-7-5(1)]~~

~~D.3.1 Emission Limitations~~

~~Compliance Monitoring Requirements [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]~~

~~D.3.2 Monitoring~~

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

D.3.31 Record Keeping Requirements

D.3.42 Reporting Requirements

Page 29, Section D.1:

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

D.1.7 Record Keeping Requirements

(a) To document compliance with Condition D.1.2(e), the documentation file for each gasoline tank truck shall be updated at least once per year to reflect current test results as determined by Method 27. This documentation shall include, as a minimum, the following:

(1) Test title: Gasoline Delivery Tank Pressure Test - EPA Reference Method 27

(2) Tank owner and address

(3) Tank identification number

(4) Testing location

(5) Date of test

(6) Tester name and signature

(7) Witnessing inspector, if any: Name, signature, and affiliation

(8) Test results: Actual pressure change in 5 minutes, mm of water (average for 2 runs).

(9) Records of repairs including the date of the repair, the type of repair, and the date of the retest.

(b) To document compliance with Condition D.1.5, records of each monthly leak inspection shall be maintained. At a minimum, the following information shall be recorded:

(1) Date of inspection

(2) Findings (may indicate no leaks discovered; or location, nature, and severity of each leak).

(3) Leak determination method

- (4) Corrective action (date each leak repaired; reasons for any repair interval in excess of 15 days).
- (5) Inspector name and signature.
- (c) When the VRU is in operation, to document compliance with Condition D.1.6(a), the Permittee shall maintain a record of the carbon bed vacuum pressure during the regeneration cycle. This parameter shall be recorded at frequency not to exceed fifteen (15) minutes. Each scheduled workday, the Permittee shall record the maximum carbon bed temperature noted during the observed regeneration cycle, record the regeneration cycle time, and confirm the switching of beds. The Permittee shall also maintain a record of all corrective actions, which are implemented when the aforementioned parameters are outside of the ranges listed in Condition D.1.6(a).
- (d) When the VRU is not utilized during the loading of tank trucks, to document compliance with Condition D.1.2(b), the Permittee shall obtain a certification from the driver of each tank truck loaded. The certification shall include the following information: date, time, product being loaded, product loaded on the immediately previous shipment, name of the trucking firm or owner, phone number of the trucking firm or owner, printed name of the driver, and signature of the driver attesting to the accuracy of the information provided.
- (e) Records of the types of volatile petroleum liquid loaded, quantity of petroleum liquid loaded, and the maximum true vapor pressure of the liquid as loaded shall be maintained for a minimum of 36 months and made available upon request by IDEM - OAQ or HDEM. Alternatively, the Permittee may keep records indicating which storage tank was the source of the volatile petroleum liquid loaded, provided the type and true vapor pressure of the liquid in the storage tank is also recorded.
- (f) The Permittee shall maintain all records necessary to demonstrate compliance with the Preventive Maintenance Plan required by Condition D.1.3 and outline in Condition B.10.
- (g) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

~~D.1.8 Reporting Requirements~~

~~There are no reporting requirements for this facility.~~

Page 35, Section D.3:

Emission Limitations and Standards [326 IAC 2-7-5(1)]

~~D.3.1 There are no emission limitations applicable to these facilities.~~

Compliance Monitoring Requirements [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

~~D.3.2 There are no specific compliance monitoring requirements applicable to these facilities.~~

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

~~D.3.3~~¹ Record Keeping Requirements

- (a) In accordance with 326 IAC 8-9-6(b) the owner or operator of tanks East Ethanol E1, West Ethanol E2, Generic Additive A1, Diesel Additive A2, Mobil Additive A3, Additive A4, Own Use Diesel A6, Non Taxable Red Dye Diesel A5, Emergency Overfill B1, Emergency Overfill B2, Emergency Overfill B3, Heating Oil O1, Heating Oil G1, and Heating Oil G2 shall maintain records of each vessel including the vessel identification number, dimensions, capacity, and a description of the emission control equipment shall be maintained for the life of the vessel.

- (b) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

D.3.42 Reporting Requirements

In accordance with 326 IAC 8-9-6(h), the owner or operator of tanks 37, 115, 152, and 153 shall maintain a record and notify the IDEM, OAQ and HDEM within thirty (30) days when the maximum true vapor pressure of the liquid exceeds seventy-five hundredths (0.75) psia.

Hammond Department of Environmental Management

Emissions Calculations

ExxonMobil Oil Corporation

Calc: T. Nyhan, 10/5/04

Tank #	Type	Product	Capacity (gallons)	Thruput (gallons)	Emissions Standing* (lbs)	Emissions Working* (lbs)	Emissions Total (TPY)
116	OF+GEO	Gasoline	1,617,924	70,000,000	2171.309	173.989	1.173
154	IF	Gasoline	4,430,832	182,000,000	17621.341	295.688	8.959
155	IF	Gasoline	4,483,500	189,000,000	17621.341	291.924	8.957
156	IF	Gasoline	3,692,346	152,000,000	16927.711	234.775	8.581
115	FC	Distillate	1,617,927	50,000,000	316.759	867.750	0.592
152	FC	Distillate	4,694,508	144,600,000	734.556	2509.533	1.622
153	FC	Distillate	4,641,756	145,000,000	867.271	2593.670	1.730
37	FC	Wastewater	84,000	2,379,690	6.179	13.995	0.010
East Ethanol Tank E1	IF	Ethyl Alcohol	30,000	35,010,000	56.105	804.625	0.430
West Ethanol Tank E2	IF	Ethyl Alcohol	30,000	35,010,000	56.105	804.625	0.430
Generic Additive Tank A1	HFR	Additive	8,000	81,600	7.026	12.823	0.010
Diesel Additive Tank A2	HFR	Additive	8,000	81,600	7.026	12.823	0.010
Mobil Additive Tank A3	HFR	Additive	8,000	81,600	7.026	12.823	0.010
Additive Tank A4	HFR	Additive	8,000	81,600	7.026	12.823	0.010
Own Use Diesel Tank A6	HFR	Additive	6,000	60,000	5.110	9.429	0.007
Non Taxable Red Dye Diesel Tank A5	HFR	Additive	250	5,250	0.225	0.825	0.001
Heating Oil Tank O1	UG, HFR	No. 2 Fuel Oil	1,000	5,100	0.000	0.103	0.000
Heating Oil Tank G1	UG, HFR	No. 2 Fuel Oil	1,000	5,100	0.000	0.103	0.000
Heating Oil Tank G2	UG, HFR	No. 2 Fuel Oil	1,000	5,100	0.000	0.103	0.000
Emergency Overfill Tank B3	UG, HFR	Transmix	1,000	30,000	0.000	22.286	0.011
Emergency Overfill Tank B2	UG, HFR	Transmix	6,000	180,000	0.000	133.714	0.067
Emergency Overfill Tank B1	UG, HFR	Transmix	10,000	300,000	0.000	222.857	0.111
						Total	32.722

Load Racks

	Control Device	Gallons Loaded (mgal)	EF/1000	Emissions Before Controls (TPY)	Control Efficiency (%)	Actual Emissions (TPY)
Gasoline Loading	VRU	761,000	5.000	1902.500	98	38.050
Distillate Loading	VRU	500,000	0.480	120.000	98	2.400
Ethanol Loading	VRU	40,000	0.408	8.160	98	0.163
Truck Vapor Loss				2.917	0	2.917
Total				2033.577		43.530

Fugitives from valves, flanges, pumps, etc. (taken from 2002 emission statement) 0.580

Tank Landing Emissions (taken from 2002 emission statement) 8.850

ExxonMobil Total 2,075.729 85.682

	Vapor Weight Percent Gasoline	Vapor Weight Percent Distillate	Emissions Before Controls (TPY)	Actual Emissions (TPY)
HAPs				
Benzene	0.40	1.26	9.33	0.40
Ethylbenzene	0.10	1.44	3.73	0.17
Hexane	1.40	0.00	27.20	1.09
2,2,4-Trimethylpentane	0.70	0.00	13.60	0.55
Toluene	1.10	7.08	30.16	1.32
Xylene	0.40	8.96	18.90	0.90
Biphenyl	0.00	0.01	0.01	0.00
Cresol	0.00	0.03	0.04	0.00
Cumene	0.00	0.81	1.01	0.05
Naphthalene	0.00	0.15	0.19	0.01
Phenol	0.00	0.05	0.06	0.00
Total			104.22	4.50

* See attached calculations.

**Hammond Department of Environmental Management
Emission Inventory System Update (EIS)
Storage of Organic Liquids ... AP-42 ... Section 7**

**External Float Roof Tank
with Geodesic Dome**

General Information:

Company Name **ExxonMobil Oil Corporation**
Year of Data **2002**
Plant ID # **089-00233**

Tank Information:

Tank ID # **116**
Tank Shell Diameter..... 90 feet
Tank Shell Height..... feet
*Tank Shell Type (Welded or Riveted)..... Welded
*Tank Deck Type (Welded or Bolted)..... Bolted
*Tank Rim Seal Type..... Mechanical Shoe/ Wiper
Tank Capacity (max liquid)..... 1,617,924 gallons

Product Information: **

Product Stored..... Gasoline
Vapor Molecular Weight..... 66.70 lb/lb-mole
True Vapor Pressure @ 60° F..... 4.5713 psia - @ 60° F
Average Organic Liquid Density..... 6.10 lb/gal
Annual Product Throughput..... 70,000,000 gallons/yr

*if this information changes, see calculations

if tank contains crude oil, see calculations

**This product information available in the AP-42, Section 7.

Lr =	Rim Seal Loss =	0.167	Tons/yr
Lwd =	Withdrawal Loss =	0.087	Tons/yr
Lf =	Deck Fitting Losses =	0.918	Tons/yr
Ld =	Deck Seam Loss =	1.706	Tons/yr

Lt = Lr + Lwd + Lf = Total Loss =	2.878	Tons/yr
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See AP-42, Section 7, for clarification of the following calculations:

* asterisked items change with rim seal information (see AP-42, Section 7)

Rim Seal Loss:

* Kr = seal factor (see Table 7.1-14) =	0.6 lb-mole/ft•yr
P* = vapor pres. function - Equation (3-3) =	0.092850 dimensionless
D = tank diameter =	90 feet
Mv = vapor molecular weight (Table 7.1-3)	66.70 lb/lb-mole
crude? Kc = product factor, Kc = 0.4 for crude oils,	1.0
Kc = 1 for all other organic liquids	

Lr = Rim Seal Loss = (Kr)*(P*)*(D)*(Mv)*(Kc) = 334.429 lb/yr

Withdrawal Loss:

Q = annual throughput, (42 gal/bbl) =	1666667 bbl/yr
WL = ave. organic liquid density (Table 7.1-3) =	6.1 lb/gal
D = tank diameter =	90 feet
Nc = number of columns =	8
C = shell clingage factor, (see Table 7.1-10) =	0.0015 bbl/1000 sqft
C = 0.006 for crude oil	

Lwd =

Withdrawal Loss = (0.943*Q*C*WL/D)(1+Nc/D) = 173.989 lb/yr

Summary of Internal Float Roof Tank Deck Fitting Loss Factors

for typical numbers based on tank diameter, see AP-42, Table 7.1-16

if tank-specific data is unavailable use Figures 7.1-24 and 25

Deck Fitting Type	Quantity	Factor	Total
Access Hatch:			
Bolted Cover, Gasketed.....	1	1.6	1.6
Unbolted Cover, Gasketed.....	0	11	0
Unbolted Cover, Ungasketed.....	0	25	0
Automatic Gauge Float Well:			
Bolted Cover, Gasketed.....	1	5.1	5.1
Unbolted Cover, Gasketed.....	0	15	0
Unbolted Cover, Ungasketed.....	0	28	0
Column Well:			
Builtup Column - Sliding cover, Gasketed.....	0	33	0
Builtup Column - Sliding Cover, Ungasketed.....	0	47	0
Pipe Column - Flexible Fabric Sleeve Seal.....	0	10	0
Pipe Column - Sliding Cover, Gasketed.....	0	19	0

Pipe Column - Sliding Cover, Ungasketed.....	0	32	0
Ladder Well:			
Sliding Cover, Gasketed.....	1	56	56
Sliding Cover, Ungasketed.....	0	76	0
Roof Leg or Hanger Well:			
Adjustable.....	28	7.9	221.2
Fixed.....	0	0	0
Sample Pipe or Well:			
Slotted Pipe - Sliding Cover, Gasketed.....	0	44	0
Slotted Pipe - Sliding Cover, Ungasketed.....	0	57	0
Sample Well - Slit Fabric Seal, (10% open area)....	1	12	12
Stub Drain, 1" diameter.....	0	1.2	0
Vacuum Breaker:			
Weighted Mechanical Actuation, Gasketed.....	1	0.7	0.7
Weighted Mechanical Actuation, Ungasketed.....	0	0.9	0

Total Deck Fitting Loss Factor (Ff) = 296.6

Deck Fitting Loss:

Ff = total roof fitting loss factor (Table 7.1-16) = 296.6 lb-mole/yr
(go to cell G47)
P*,Mv, and Kc as defined in above calculations

Lf = Roof Fitting Losses = (Ff)*(P)*(Mv)*(Kc) = 1836.880 lb/yr

Deck Seam Loss:

Kd = deck seam loss per unit seam length factor= 0.34 lb/mole/ft-yr
(0.0 for welded deck, 0.34 for bolted deck)
Sd = deck seam length factor = 0.2 ft/sqft
D,P*,Mv, and Kc are as defined above

Ld =

Deck Seam Loss = (Kd)*(Sd)*(D^2)*(P)*(Mv)*(Kc)= 3411.172 lb/yr

Tanks with welded decks do not have deck seam losses

The End

**Hammond Department of Environmental Management
Emission Inventory System Update (EIS)
Storage of Organic Liquids ... AP-42 ... Section 7**

Internal Float Roof Tank

General Information:

Company Name **ExxonMobil Oil Corporation**
Year of Data **2002**
Plant ID # 089-00233

Tank Information:

Tank ID # **154**
Tank Shell Diameter..... 134 feet
Tank Shell Height..... feet
*Tank Shell Type (Welded or Riveted)..... Welded
*Tank Deck Type (Welded or Bolted)..... Bolted
*Tank Rim Seal Type..... Mechanical Shoe/ Wiper
Tank Capacity (max liquid)..... 4,430,832 gallons

Product Information: **

Product Stored..... Gasoline
Vapor Molecular Weight..... 66.70 lb/lb-mole
True Vapor Pressure @ 60° F..... 4.5713 psia - @ 60° F
Average Organic Liquid Density..... 6.10 lb/gal
Annual Product Throughput..... 182,000,000 gallons/yr

*if this information changes, see calculations

if tank contains crude oil, see calculations

**This product information available in the AP-42, Section 7.

Lr =	Rim Seal Loss =	2.780	Tons/yr
Lwd =	Withdrawal Loss =	0.148	Tons/yr
Lf =	Deck Fitting Losses =	2.250	Tons/yr
Ld =	Deck Seam Loss =	3.781	Tons/yr

Lt = Lr + Lwd + Lf = Total Loss =	8.959	Tons/yr
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See AP-42, Section 7, for clarification of the following calculations:

* asterisked items change with rim seal information (see AP-42, Section 7)

Rim Seal Loss:

* Kr = seal factor (see Table 7.1-14) =	6.7 lb-mole/ft•yr
P* = vapor pres. function - Equation (3-3) =	0.092850 dimensionless
D = tank diameter =	134 feet
Mv = vapor molecular weight (Table 7.1-3)	66.70 lb/lb-mole
crude? Kc = product factor, Kc = 0.4 for crude oils,	1.0
Kc = 1 for all other organic liquids	

Lr = Rim Seal Loss = (Kr)*(P*)(D)*(Mv)*(Kc) = 5560.185 lb/yr

Withdrawal Loss:

Q = annual throughput, (42 gal/bbl) =	4333333 bbl/yr
WL = ave. organic liquid density (Table 7.1-3) =	6.1 lb/gal
D = tank diameter =	134 feet
Nc = number of columns =	8
C = shell clingage factor, (see Table 7.1-10) =	0.0015 bbl/1000 sqft
C = 0.006 for crude oil	

Lwd =

Withdrawal Loss = (0.943*Q*C*WL/D)(1+Nc/D) = 295.688 lb/yr

Summary of Internal Float Roof Tank Deck Fitting Loss Factors

for typical numbers based on tank diameter, see AP-42, Table 7.1-16
if tank-specific data is unavailable use Figures 7.1-24 and 25

Deck Fitting Type	Quantity	Factor	Total
Access Hatch:			
Bolted Cover, Gasketed.....	1	1.6	1.6
Unbolted Cover, Gasketed.....	0	11	0
Unbolted Cover, Ungasketed.....	0	25	0
Automatic Gauge Float Well:			
Bolted Cover, Gasketed.....	1	5.1	5.1
Unbolted Cover, Gasketed.....	0	15	0
Unbolted Cover, Ungasketed.....	0	28	0
Column Well:			
Builtup Column - Sliding cover, Gasketed.....	8	33	264
Builtup Column - Sliding Cover, Ungasketed.....	0	47	0

Pipe Column - Flexible Fabric Sleeve Seal.....	0	10	0
Pipe Column - Sliding Cover, Gasketed.....	0	19	0
Pipe Column - Sliding Cover, Ungasketed.....	0	32	0

Ladder Well:

Sliding Cover, Gasketed.....	1	56	56
Sliding Cover, Ungasketed.....	0	76	0

Roof Leg or Hanger Well:

Adjustable.....	49	7.9	387.1
Fixed.....	0	0	0

Sample Pipe or Well:

Slotted Pipe - Sliding Cover, Gasketed.....	0	44	0
Slotted Pipe - Sliding Cover, Ungasketed.....	0	57	0
Sample Well - Slit Fabric Seal, (10% open area)..	1	12	12
Stub Drain, 1" diameter.....	0	1.2	0

Vacuum Breaker:

Weighted Mechanical Actuation, Gasketed.....	1	0.7	0.7
Weighted Mechanical Actuation, Ungasketed.....	0	0.9	0

Total Deck Fitting Loss Factor (Ff) = 726.5

Deck Fitting Loss:

Ff = total deck fitting loss factor (Table 7.1-16) = 726.5 lb-mole/yr
(go to cell G47)

P*,Mv, and Kc as defined in above calculations

Lf = Deck Fitting Losses = (Ff)*(P*)*(Mv)*(Kc) = 4499.304 lb/yr

Deck Seam Loss:

Kd = deck seam loss per unit seam length factor= 0.34 lb/mole/ft-yr

(0.0 for welded deck, 0.34 for bolted deck)

Sd = deck seam length factor = 0.2 ft/sqft

D,P*,Mv, and Kc are as defined above

Ld =

Deck Seam Loss = (Kd)*(Sd)*(D^2)*(P*)*(Mv)*(Kc)= 7561.852 lb/yr

Tanks with welded decks do not have deck seam losses

The End

**Hammond Department of Environmental Management
Emission Inventory System Update (EIS)
Storage of Organic Liquids ... AP-42 ... Section 7**

Internal Float Roof Tank

General Information:

Company Name **ExxonMobil Oil Corporation**
Year of Data **2002**
Plant ID # 089-00233

Tank Information:

Tank ID # **155**
Tank Shell Diameter..... 134 feet
Tank Shell Height..... feet
*Tank Shell Type (Welded or Riveted)..... Welded
*Tank Deck Type (Welded or Bolted)..... Bolted
*Tank Rim Seal Type..... Mechanical Shoe/ Wiper
Tank Capacity (max liquid)..... 4,483,500 gallons

Product Information: **

Product Stored..... Gasoline
Vapor Molecular Weight..... 66.70 lb/lb-mole
True Vapor Pressure @ 60° F..... 4.5713 psia - @ 60° F
Average Organic Liquid Density..... 6.10 lb/gal
Annual Product Throughput..... 189,000,000 gallons/yr

*if this information changes, see calculations

if tank contains crude oil, see calculations

**This product information available in the AP-42, Section 7.

Lr =	Rim Seal Loss =	2.780	Tons/yr
Lwd =	Withdrawal Loss =	0.146	Tons/yr
Lf =	Deck Fitting Losses =	2.250	Tons/yr
Ld =	Deck Seam Loss =	3.781	Tons/yr

Lt = Lr + Lwd + Lf = Total Loss =	8.957	Tons/yr
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See AP-42, Section 7, for clarification of the following calculations:

* asterisked items change with rim seal information (see AP-42, Section 7)

Rim Seal Loss:

* Kr = seal factor (see Table 7.1-14) =	6.7 lb-mole/ft•yr
P* = vapor pres. function - Equation (3-3) =	0.092850 dimensionless
D = tank diameter =	134 feet
Mv = vapor molecular weight (Table 7.1-3)	66.70 lb/lb-mole
crude? Kc = product factor, Kc = 0.4 for crude oils,	1.0
Kc = 1 for all other organic liquids	

Lr = Rim Seal Loss = (Kr)*(P*)(D)*(Mv)*(Kc) = 5560.185 lb/yr

Withdrawal Loss:

Q = annual throughput, (42 gal/bbl) =	4500000 bbl/yr
WL = ave. organic liquid density (Table 7.1-3) =	6.1 lb/gal
D = tank diameter =	134 feet
Nc = number of columns =	1
C = shell clingage factor, (see Table 7.1-10) =	0.0015 bbl/1000 sqft
C = 0.006 for crude oil	

Lwd =

Withdrawal Loss = (0.943*Q*C*WL/D)(1+Nc/D) = 291.924 lb/yr

Summary of Internal Float Roof Tank Deck Fitting Loss Factors

for typical numbers based on tank diameter, see AP-42, Table 7.1-16
if tank-specific data is unavailable use Figures 7.1-24 and 25

Deck Fitting Type	Quantity	Factor	Total
Access Hatch:			
Bolted Cover, Gasketed.....	1	1.6	1.6
Unbolted Cover, Gasketed.....	0	11	0
Unbolted Cover, Ungasketed.....	0	25	0
Automatic Gauge Float Well:			
Bolted Cover, Gasketed.....	1	5.1	5.1
Unbolted Cover, Gasketed.....	0	15	0
Unbolted Cover, Ungasketed.....	0	28	0
Column Well:			
Builtup Column - Sliding cover, Gasketed.....	8	33	264
Builtup Column - Sliding Cover, Ungasketed.....	0	47	0

Pipe Column - Flexible Fabric Sleeve Seal.....	0	10	0
Pipe Column - Sliding Cover, Gasketed.....	0	19	0
Pipe Column - Sliding Cover, Ungasketed.....	0	32	0

Ladder Well:

Sliding Cover, Gasketed.....	1	56	56
Sliding Cover, Ungasketed.....	0	76	0

Roof Leg or Hanger Well:

Adjustable.....	49	7.9	387.1
Fixed.....	0	0	0

Sample Pipe or Well:

Slotted Pipe - Sliding Cover, Gasketed.....	0	44	0
Slotted Pipe - Sliding Cover, Ungasketed.....	0	57	0
Sample Well - Slit Fabric Seal, (10% open area)..	1	12	12
Stub Drain, 1" diameter.....	0	1.2	0

Vacuum Breaker:

Weighted Mechanical Actuation, Gasketed.....	1	0.7	0.7
Weighted Mechanical Actuation, Ungasketed.....	0	0.9	0

Total Deck Fitting Loss Factor (Ff) = 726.5

Deck Fitting Loss:

Ff = total deck fitting loss factor (Table 7.1-16) = 726.5 lb-mole/yr
(go to cell G47)

P*,Mv, and Kc as defined in above calculations

Lf = Deck Fitting Losses = (Ff)*(P*)*(Mv)*(Kc) = 4499.304 lb/yr

Deck Seam Loss:

Kd = deck seam loss per unit seam length factor= 0.34 lb/mole/ft-yr

(0.0 for welded deck, 0.34 for bolted deck)

Sd = deck seam length factor = 0.2 ft/sqft

D,P*,Mv, and Kc are as defined above

Ld =

Deck Seam Loss = (Kd)*(Sd)*(D^2)*(P*)*(Mv)*(Kc)= 7561.852 lb/yr

Tanks with welded decks do not have deck seam losses

The End

**Hammond Department of Environmental Management
Emission Inventory System Update (EIS)
Storage of Organic Liquids ... AP-42 ... Section 7**

Internal Float Roof Tank

General Information:

Company Name **ExxonMobil Oil Corporation**
Year of Data **2002**
Plant ID # 089-00233

Tank Information:

Tank ID # **156**
Tank Shell Diameter..... 134 feet
Tank Shell Height..... feet
*Tank Shell Type (Welded or Riveted)..... Welded
*Tank Deck Type (Welded or Bolted)..... Bolted
*Tank Rim Seal Type..... Mechanical Shoe/ Wiper
Tank Capacity (max liquid)..... 3,692,346 gallons

Product Information: **

Product Stored..... Gasoline
Vapor Molecular Weight..... 66.70 lb/lb-mole
True Vapor Pressure @ 60° F..... 4.5713 psia - @ 60° F
Average Organic Liquid Density..... 6.10 lb/gal
Annual Product Throughput..... 152,000,000 gallons/yr

*if this information changes, see calculations

if tank contains crude oil, see calculations

**This product information available in the AP-42, Section 7.

Lr =	Rim Seal Loss =	2.780	Tons/yr
Lwd =	Withdrawal Loss =	0.117	Tons/yr
Lf =	Deck Fitting Losses =	1.903	Tons/yr
Ld =	Deck Seam Loss =	3.781	Tons/yr

Lt = Lr + Lwd + Lf = Total Loss =	8.581	Tons/yr
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RH102598

See AP-42, Section 7, for clarification of the following calculations:

* asterisked items change with rim seal information (see AP-42, Section 7)

Rim Seal Loss:

* Kr = seal factor (see Table 7.1-14) =	6.7 lb-mole/ft•yr
P* = vapor pres. function - Equation (3-3) =	0.092850 dimensionless
D = tank diameter =	134 feet
Mv = vapor molecular weight (Table 7.1-3)	66.70 lb/lb-mole
crude? Kc = product factor, Kc = 0.4 for crude oils,	1.0
Kc = 1 for all other organic liquids	

Lr = Rim Seal Loss = (Kr)*(P*)(D)*(Mv)*(Kc) = 5560.185 lb/yr

Withdrawal Loss:

Q = annual throughput, (42 gal/bbl) =	3619048 bbl/yr
WL = ave. organic liquid density (Table 7.1-3) =	6.1 lb/gal
D = tank diameter =	134 feet
Nc = number of columns =	1
C = shell clingage factor, (see Table 7.1-10) =	0.0015 bbl/1000 sqft
C = 0.006 for crude oil	

Lwd =

Withdrawal Loss = (0.943*Q*C*WL/D)(1+Nc/D) = 234.775 lb/yr

Summary of Internal Float Roof Tank Deck Fitting Loss Factors

for typical numbers based on tank diameter, see AP-42, Table 7.1-16
if tank-specific data is unavailable use Figures 7.1-24 and 25

Deck Fitting Type	Quantity	Factor	Total
Access Hatch:			
Bolted Cover, Gasketed.....	1	1.6	1.6
Unbolted Cover, Gasketed.....	0	11	0
Unbolted Cover, Ungasketed.....	0	25	0
Automatic Gauge Float Well:			
Bolted Cover, Gasketed.....	1	5.1	5.1
Unbolted Cover, Gasketed.....	0	15	0
Unbolted Cover, Ungasketed.....	0	28	0
Column Well:			
Builtup Column - Sliding cover, Gasketed.....	0	33	0
Builtup Column - Sliding Cover, Ungasketed.....	0	47	0

Pipe Column - Flexible Fabric Sleeve Seal.....	0	10	0
Pipe Column - Sliding Cover, Gasketed.....	8	19	152
Pipe Column - Sliding Cover, Ungasketed.....	0	32	0

Ladder Well:

Sliding Cover, Gasketed.....	1	56	56
Sliding Cover, Ungasketed.....	0	76	0

Roof Leg or Hanger Well:

Adjustable.....	49	7.9	387.1
Fixed.....	0	0	0

Sample Pipe or Well:

Slotted Pipe - Sliding Cover, Gasketed.....	0	44	0
Slotted Pipe - Sliding Cover, Ungasketed.....	0	57	0
Sample Well - Slit Fabric Seal, (10% open area)..	1	12	12
Stub Drain, 1" diameter.....	0	1.2	0

Vacuum Breaker:

Weighted Mechanical Actuation, Gasketed.....	1	0.7	0.7
Weighted Mechanical Actuation, Ungasketed.....	0	0.9	0

Total Deck Fitting Loss Factor (Ff) = 614.5

Deck Fitting Loss:

Ff = total deck fitting loss factor (Table 7.1-16) = 614.5 lb-mole/yr
(go to cell G47)

P*,Mv, and Kc as defined in above calculations

Lf = Deck Fitting Losses = (Ff)*(P*)*(Mv)*(Kc) = 3805.674 lb/yr

Deck Seam Loss:

Kd = deck seam loss per unit seam length factor= 0.34 lb/mole/ft-yr

(0.0 for welded deck, 0.34 for bolted deck)

Sd = deck seam length factor = 0.2 ft/sqft

D,P*,Mv, and Kc are as defined above

Ld =

Deck Seam Loss = (Kd)*(Sd)*(D^2)*(P*)*(Mv)*(Kc)= 7561.852 lb/yr

Tanks with welded decks do not have deck seam losses

The End

**Hammond Department of Environmental Management
Emission Inventory System Update (EIS)
Storage of Organic Liquids ... AP-42 ... Section 7**

Fixed Roof Tank -Vertical

General Information:

Company Name **ExxonMobil Oil Corporation**
Year of Data **2002**
Plant ID # 089-00233

Tank Information:

Tank ID # **115**
Tank Shell Diameter..... 90 feet
Tank Shell Height..... 40 feet
Tank Capacity (max liquid)..... 1,617,927 gallons

Product Information:

Product Stored..... Distillate
*Vapor Molecular Weight..... 130.0 lb/lb-mole
*True Vapor Pressure @ 60° F..... 0.0073 psia - @ 60° F
*True Vapor Pressure @ 40° F..... 0.0043 psia - @ 40° F
Annual Product Throughput..... 50,000,000 gallons/yr
Average Annual Liquid Height..... 24 feet
(If unknown, use half of tank shell height.)

*This product information available in the AP-42, Section 7.
*if tank is not white, or if it contains crude oils - see calculations

Ls = Standing Storage Losses = 0.1584 Tons/yr
Lw = Working Losses = 0.4339 Tons/yr

Lt = Ls + Lw = Total Losses =	0.5923	Tons/yr
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See AP-42, Section 7, for clarification of the following calculations:

$$L_s = \text{Standing Storage Losses} = 365 \cdot (V_v) \cdot (W_v) \cdot (K_e) \cdot (K_s)$$

$$\begin{aligned} H_r &= \text{tank roof height} = S_r \cdot R_s = 0.0625 \cdot (D/2) = & 2.000 \text{ feet} \\ H_{ro} &= \text{roof outage} = H_r/3 = & 0.667 \text{ feet} \\ H_l &= \text{liquid height (1/2 tank height if unknown)} = & 24.000 \text{ feet} \\ H_s &= \text{tank shell height} = & 40.000 \text{ feet} \\ H_{vo} &= \text{vapor space outage} = H_s - H_l + H_{ro} = & 16.667 \text{ feet} \\ D &= \text{tank diameter} = & 90.000 \text{ feet} \end{aligned}$$

$$V_v = \text{Tank Vapor Space Volume} = (\pi/4) \cdot (D^2) \cdot (H_{vo}) = \underline{106028.752 \text{ cft}}$$

$$\begin{aligned} M_v &= \text{vapor molecular weight (Tables 7.1-2 \& 3)} & 130.0 \text{ lb/lb-mole} \\ P_{va} &= \text{vapor pressure at TL} (Tables 7.1-2 \& 3) & 0.005607 \text{ psia @ } 50\text{-}60^\circ\text{F} \\ T_{La} &= \text{daily average liquid surface temperature}^\circ\text{R} & 515.310^\circ\text{R} \\ &\text{as calculated for Chicago area using AP-42, Section 7} \end{aligned}$$

$$W_v = \text{Vapor Density} = (M_v \cdot P_{va}) / (10.731 \cdot T_{La}) = \underline{0.0001318 \text{ lb/cft}}$$

$$\begin{aligned} \Delta T_a &= \text{daily ambient temp range (Chgo area)} = & 19.00^\circ\text{R} \\ \partial &= \text{tank paint solar absorptance (Table 7.1-7)} = & 0.54 \text{ dimensionless} \end{aligned}$$

*(this factor (∂) will change for non-white tanks)

$$\begin{aligned} I &= \text{daily total solar insolation factor (Chgo)} = & 1215 \text{ Btu/sqft} \cdot \text{day} \\ \Delta T_v &= \text{daily vapor temp range} = \\ &= 0.72 \cdot (\Delta T_a) + 0.028 \cdot (\partial) \cdot (I) = & 32.0508^\circ\text{R} \\ T_{La} &= \text{daily average liquid surface temp }^\circ\text{R} & 515.310^\circ\text{R} \\ \Delta P_v &= \text{daily vpr pres range} = P_{v@60} - P_{v@40} = & 0.003 \text{ psia} \\ \Delta P_b &= \text{breather vent pressure setting range} = & 0 \text{ psig} \\ P_a &= \text{atmospheric pressure} = & 14.7 \text{ psia} \\ P_{va} &= \text{vapor pressure at TL} (Tables 7.1-2 \& 3) & 0.005607 \text{ psia} \end{aligned}$$

$$K_e = \text{Vapor Space Expansion Factor} = \frac{(\Delta T_v / T_{La}) + (\Delta P_v - \Delta P_b) / (P_a - P_{va})}{1} = \underline{0.062401 \text{ dimensionless}}$$

$$K_s = \text{Vented Vapor Saturation Factor} = \frac{1}{1 + 0.053 \cdot P_{va} \cdot H_{vo}} = \underline{0.995072 \text{ dimensionless}}$$

Ls = Standing Storage Losses, lb/yr

$$L_s = 365 \cdot (V_v) \cdot (W_v) \cdot (K_e) \cdot (K_s)$$

$$\underline{L_s = 316.759 \text{ lb/yr}}$$

See AP-42, Section 7, for clarification of the following calculations:

$$\text{Lw} = \text{Working Losses} = 0.0010 * (\text{Mv}) * (\text{Pva}) * (\text{Q}) * (\text{Kn}) * (\text{Kp})$$

Q = annual net thruput, bbl/yr - (42 gal/bbl) =	1,190,476.2 bbl/yr
VLx = tank max liquid volume - (7.481 gal/cft)	216,271.5 cft
N = # of turnovers per year = $5.614 * \text{Q} / \text{VLx}$ =	30.9 dimensionless
Kn = turnover factor, =1 unless $N > 36$	1.0000 dimensionless
Kp = working loss product factor =	1.00 dimensionless

*** Kp = 0.75 for crude oils,
1.0 for all other products**

Lw = Working Losses, lb/yr

$$\text{Lw} = 0.0010 * (\text{Mv}) * (\text{Pva}) * (\text{Q}) * (\text{Kn}) * (\text{Kp})$$

$$\text{Lw} = 867.750 \text{ lb/yr}$$

The End

**Hammond Department of Environmental Management
Emission Inventory System Update (EIS)
Storage of Organic Liquids ... AP-42 ... Section 7**

Fixed Roof Tank -Vertical

General Information:

Company Name **ExxonMobil Oil Corporation**
Year of Data **2002**
Plant ID # 089-00233

Tank Information:

Tank ID # **152**
Tank Shell Diameter..... 134 feet
Tank Shell Height..... 48 feet
Tank Capacity (max liquid)..... 4,694,508 gallons

Product Information:

Product Stored..... Distillate
*Vapor Molecular Weight..... 130.0 lb/lb-mole
*True Vapor Pressure @ 60° F..... 0.0073 psia - @ 60° F
*True Vapor Pressure @ 40° F..... 0.0043 psia - @ 40° F
Annual Product Throughput..... 144,600,000 gallons/yr
Average Annual Liquid Height..... 30 feet
(If unknown, use half of tank shell height.)

*This product information available in the AP-42, Section 7.
*if tank is not white, or if it contains crude oils - see calculations

Ls = Standing Storage Losses = 0.3673 Tons/yr
Lw = Working Losses = 1.2548 Tons/yr

Lt = Ls + Lw = Total Losses =	1.6220	Tons/yr
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See AP-42, Section 7, for clarification of the following calculations:

$$L_s = \text{Standing Storage Losses} = 365 \cdot (V_v) \cdot (W_v) \cdot (K_e) \cdot (K_s)$$

$$\begin{aligned} H_r &= \text{tank roof height} = S_r \cdot R_s = 0.0625 \cdot (D/2) = & 2.000 \text{ feet} \\ H_{ro} &= \text{roof outage} = H_r/3 = & 0.667 \text{ feet} \\ H_l &= \text{liquid height (1/2 tank height if unknown)} = & 30.000 \text{ feet} \\ H_s &= \text{tank shell height} = & 48.000 \text{ feet} \\ H_{vo} &= \text{vapor space outage} = H_s - H_l + H_{ro} = & 18.667 \text{ feet} \\ D &= \text{tank diameter} = & 134.000 \text{ feet} \end{aligned}$$

$$V_v = \text{Tank Vapor Space Volume} = (\pi/4) \cdot (D^2) \cdot (H_{vo}) = \underline{263248.709 \text{ cft}}$$

$$\begin{aligned} M_v &= \text{vapor molecular weight (Tables 7.1-2 \& 3)} & 130.0 \text{ lb/lb-mole} \\ P_{va} &= \text{vapor pressure at TL} (Tables 7.1-2 \& 3) & 0.005607 \text{ psia @ } 50\text{-}60^\circ\text{F} \\ T_{La} &= \text{daily average liquid surface temperature}^\circ\text{R} & 515.310^\circ\text{R} \\ &\text{as calculated for Chicago area using AP-42, Section 7} \end{aligned}$$

$$W_v = \text{Vapor Density} = (M_v \cdot P_{va}) / (10.731 \cdot T_{La}) = \underline{0.0001318 \text{ lb/cft}}$$

$$\begin{aligned} \Delta T_a &= \text{daily ambient temp range (Chgo area)} = & 19.00^\circ\text{R} \\ \partial &= \text{tank paint solar absorptance (Table 7.1-7)} = & 0.54 \text{ dimensionless} \end{aligned}$$

*(this factor (∂) will change for non-white tanks)

$$\begin{aligned} I &= \text{daily total solar insolation factor (Chgo)} = & 1215 \text{ Btu/sqft} \cdot \text{day} \\ \Delta T_v &= \text{daily vapor temp range} = \\ &= 0.72 \cdot (\Delta T_a) + 0.028 \cdot (\partial) \cdot (I) = & 32.0508^\circ\text{R} \\ T_{La} &= \text{daily average liquid surface temp }^\circ\text{R} & 515.310^\circ\text{R} \\ \Delta P_v &= \text{daily vpr pres range} = P_{v@60} - P_{v@40} = & 0.003 \text{ psia} \\ \Delta P_b &= \text{breather vent pressure setting range} = & 0.06 \text{ psig} \\ P_a &= \text{atmospheric pressure} = & 14.7 \text{ psia} \\ P_{va} &= \text{vapor pressure at TL} (Tables 7.1-2 \& 3) & 0.005607 \text{ psia} \end{aligned}$$

$$K_e = \text{Vapor Space Expansion Factor} = \frac{(\Delta T_v / T_{La}) + (\Delta P_v - \Delta P_b) / (P_a - P_{va})}{1} = \underline{0.058318 \text{ dimensionless}}$$

$$K_s = \text{Vented Vapor Saturation Factor} = \frac{1}{1 + 0.053 \cdot P_{va} \cdot H_{vo}} = \underline{0.994483 \text{ dimensionless}}$$

L_s = Standing Storage Losses, lb/yr

$$L_s = 365 \cdot (V_v) \cdot (W_v) \cdot (K_e) \cdot (K_s)$$

$$\underline{L_s = 734.556 \text{ lb/yr}}$$

See AP-42, Section 7, for clarification of the following calculations:

$$\text{Lw} = \text{Working Losses} = 0.0010 \cdot (Mv) \cdot (Pva) \cdot (Q) \cdot (Kn) \cdot (Kp)$$

Q = annual net thruput, bbl/yr - (42 gal/bbl) =	3,442,857.1 bbl/yr
VLx = tank max liquid volume - (7.481 gal/cft)	627,524.1 cft
N = # of turnovers per year = $5.614 \cdot Q / VLx$ =	30.8 dimensionless
Kn = turnover factor, =1 unless $N > 36$	1.0000 dimensionless
Kp = working loss product factor =	1.00 dimensionless

*** Kp = 0.75 for crude oils,
1.0 for all other products**

Lw = Working Losses, lb/yr

$$\text{Lw} = 0.0010 \cdot (Mv) \cdot (Pva) \cdot (Q) \cdot (Kn) \cdot (Kp)$$

$$\text{Lw} = 2509.533 \text{ lb/yr}$$

The End

**Hammond Department of Environmental Management
Emission Inventory System Update (EIS)
Storage of Organic Liquids ... AP-42 ... Section 7**

Fixed Roof Tank -Vertical

General Information:

Company Name **ExxonMobil Oil Corporation**
Year of Data **2002**
Plant ID # 089-00233

Tank Information:

Tank ID # **153**
Tank Shell Diameter..... 134 feet
Tank Shell Height..... 48 feet
Tank Capacity (max liquid)..... 4,641,756 gallons

Product Information:

Product Stored..... Distillate
*Vapor Molecular Weight..... 130.0 lb/lb-mole
*True Vapor Pressure @ 60° F..... 0.0077 psia - @ 60° F
*True Vapor Pressure @ 40° F..... 0.0043 psia - @ 40° F
Annual Product Throughput..... 145,000,000 gallons/yr
Average Annual Liquid Height..... 30 feet
(If unknown, use half of tank shell height.)

*This product information available in the AP-42, Section 7.
*if tank is not white, or if it contains crude oils - see calculations

Ls = Standing Storage Losses = 0.4336 Tons/yr
Lw = Working Losses = 1.2968 Tons/yr

Lt = Ls + Lw = Total Losses =	1.7305	Tons/yr
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See AP-42, Section 7, for clarification of the following calculations:

$$L_s = \text{Standing Storage Losses} = 365 \cdot (V_v) \cdot (W_v) \cdot (K_e) \cdot (K_s)$$

$$\begin{aligned} H_r &= \text{tank roof height} = S_r \cdot R_s = 0.0625 \cdot (D/2) = & 2.000 \text{ feet} \\ H_{ro} &= \text{roof outage} = H_r/3 = & 0.667 \text{ feet} \\ H_l &= \text{liquid height (1/2 tank height if unknown)} = & 30.000 \text{ feet} \\ H_s &= \text{tank shell height} = & 48.000 \text{ feet} \\ H_{vo} &= \text{vapor space outage} = H_s - H_l + H_{ro} = & 18.667 \text{ feet} \\ D &= \text{tank diameter} = & 134.000 \text{ feet} \end{aligned}$$

$$V_v = \text{Tank Vapor Space Volume} = (\pi/4) \cdot (D^2) \cdot (H_{vo}) = \underline{263248.709 \text{ cft}}$$

$$\begin{aligned} M_v &= \text{vapor molecular weight (Tables 7.1-2 \& 3)} & 130.0 \text{ lb/lb-mole} \\ P_{va} &= \text{vapor pressure at TL} (Tables 7.1-2 \& 3) & 0.005779 \text{ psia @ } 50\text{-}60^\circ\text{F} \\ T_{La} &= \text{daily average liquid surface temperature}^\circ\text{R} & 516.210 \\ &\text{as calculated for Chicago area using AP-42, Section 7} \end{aligned}$$

$$W_v = \text{Vapor Density} = (M_v \cdot P_{va}) / (10.731 \cdot T_{La}) = \underline{0.0001356 \text{ lb/cft}}$$

$$\begin{aligned} \Delta T_a &= \text{daily ambient temp range (Chgo area)} = & 19.00 \text{ }^\circ\text{R} \\ \partial &= \text{tank paint solar absorptance (Table 7.1-7)} = & 0.61 \text{ dimensionless} \end{aligned}$$

***(this factor (∂) will change for non-white tanks)**

$$\begin{aligned} I &= \text{daily total solar insolation factor (Chgo)} = & 1215 \text{ Btu/sqft} \cdot \text{day} \\ \Delta T_v &= \text{daily vapor temp range} = \\ &= 0.72 \cdot (\Delta T_a) + 0.028 \cdot (\partial) \cdot (I) = & 34.4322 \text{ }^\circ\text{R} \\ T_{La} &= \text{daily average liquid surface temp }^\circ\text{R} & 516.210 \\ \Delta P_v &= \text{daily vpr pres range} = P_{v@60} - P_{v@40} = & 0.0034 \text{ psia} \\ \Delta P_b &= \text{breather vent pressure setting range} = & 0 \text{ psig} \\ P_a &= \text{atmospheric pressure} = & 14.7 \text{ psia} \\ P_{va} &= \text{vapor pressure at TL} (Tables 7.1-2 \& 3) & 0.005779 \text{ psia} \end{aligned}$$

$$K_e = \text{Vapor Space Expansion Factor} = \frac{(\Delta T_v / T_{La}) + (\Delta P_v - \Delta P_b) / (P_a - P_{va})}{1} = \underline{0.066933 \text{ dimensionless}}$$

$$K_s = \text{Vented Vapor Saturation Factor} = \frac{1}{1 + 0.053 \cdot P_{va} \cdot H_{vo}} = \underline{0.994315 \text{ dimensionless}}$$

L_s = Standing Storage Losses, lb/yr

$$L_s = 365 \cdot (V_v) \cdot (W_v) \cdot (K_e) \cdot (K_s)$$

$$\underline{L_s = 867.271 \text{ lb/yr}}$$

See AP-42, Section 7, for clarification of the following calculations:

$$\text{Lw} = \text{Working Losses} = 0.0010 \cdot (Mv) \cdot (Pva) \cdot (Q) \cdot (Kn) \cdot (Kp)$$

Q = annual net thruput, bbl/yr - (42 gal/bbl) =	3,452,381.0 bbl/yr
VLx = tank max liquid volume - (7.481 gal/cft)	620,472.7 cft
N = # of turnovers per year = $5.614 \cdot Q / VLx$ =	31.2 dimensionless
Kn = turnover factor, =1 unless $N > 36$	1.0000 dimensionless
Kp = working loss product factor =	1.00 dimensionless

*** Kp = 0.75 for crude oils,
1.0 for all other products**

Lw = Working Losses, lb/yr

$$\text{Lw} = 0.0010 \cdot (Mv) \cdot (Pva) \cdot (Q) \cdot (Kn) \cdot (Kp)$$

$$\text{Lw} = 2593.670 \text{ lb/yr}$$

The End

**Hammond Department of Environmental Management
Emission Inventory System Update (EIS)
Storage of Organic Liquids ... AP-42 ... Section 7**

Fixed Roof Tank -Vertical

General Information:

Company Name **ExxonMobil Oil Corporation**
Year of Data **2002**
Plant ID # 089-00233

Tank Information:

Tank ID # **37**
Tank Shell Diameter..... 30 feet
Tank Shell Height..... 18 feet
Tank Capacity (max liquid)..... 84,000 gallons

Product Information:

Product Stored..... Wastewater
*Vapor Molecular Weight..... 130.0 lb/lb-mole
*True Vapor Pressure @ 60° F..... 0.0950 psia - @ 60° F
*True Vapor Pressure @ 40° F..... 0.0003 psia - @ 40° F
Annual Product Throughput..... 2,379,690 gallons/yr
Average Annual Liquid Height..... 10 feet
(If unknown, use half of tank shell height.)

*This product information available in the AP-42, Section 7.

*if tank is not white, or if it contains crude oils - see calculations

Ls = Standing Storage Losses = 0.0031 Tons/yr
Lw = Working Losses = 0.0070 Tons/yr

Lt = Ls + Lw = Total Losses =	0.0101	Tons/yr
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See AP-42, Section 7, for clarification of the following calculations:

$$L_s = \text{Standing Storage Losses} = 365 \cdot (V_v) \cdot (W_v) \cdot (K_e) \cdot (K_s)$$

$$\begin{aligned} H_r &= \text{tank roof height} = S_r \cdot R_s = 0.0625 \cdot (D/2) = & 0.938 \text{ feet} \\ H_{ro} &= \text{roof outage} = H_r/3 = & 0.313 \text{ feet} \\ H_l &= \text{liquid height (1/2 tank height if unknown)} = & 10.000 \text{ feet} \\ H_s &= \text{tank shell height} = & 18.000 \text{ feet} \\ H_{vo} &= \text{vapor space outage} = H_s - H_l + H_{ro} = & 8.313 \text{ feet} \\ D &= \text{tank diameter} = & 30.000 \text{ feet} \end{aligned}$$

$$V_v = \text{Tank Vapor Space Volume} = (\pi/4) \cdot (D^2) \cdot (H_{vo}) = \underline{5875.760 \text{ cft}}$$

$$\begin{aligned} M_v &= \text{vapor molecular weight (Tables 7.1-2 \& 3)} & 130.0 \text{ lb/lb-mole} \\ P_{va} &= \text{vapor pressure at TL} (Tables 7.1-2 \& 3) & 0.0019 \text{ psia @ } 50\text{-}60^\circ\text{F} \\ T_{La} &= \text{daily average liquid surface temperature}^\circ\text{R} & 515.310 \\ &\text{as calculated for Chicago area using AP-42, Section 7} \end{aligned}$$

$$W_v = \text{Vapor Density} = (M_v \cdot P_{va}) / (10.731 \cdot T_{La}) = \underline{0.0000447 \text{ lb/cft}}$$

$$\begin{aligned} \Delta T_a &= \text{daily ambient temp range (Chgo area)} = & 19.00 \text{ }^\circ\text{R} \\ \partial &= \text{tank paint solar absorptance (Table 7.1-7)} = & 0.54 \text{ dimensionless} \end{aligned}$$

*(this factor (∂) will change for non-white tanks)

$$\begin{aligned} I &= \text{daily total solar insolation factor (Chgo)} = & 1215 \text{ Btu/sqft} \cdot \text{day} \\ \Delta T_v &= \text{daily vapor temp range} = \\ &= 0.72 \cdot (\Delta T_a) + 0.028 \cdot (\partial) \cdot (I) = & 32.0508 \text{ }^\circ\text{R} \\ T_{La} &= \text{daily average liquid surface temp }^\circ\text{R} & 515.310 \\ \Delta P_v &= \text{daily vpr pres range} = P_{v@60} - P_{v@40} = & 0.0947 \text{ psia} \\ \Delta P_b &= \text{breather vent pressure setting range} = & 0.06 \text{ psig} \\ P_a &= \text{atmospheric pressure} = & 14.7 \text{ psia} \\ P_{va} &= \text{vapor pressure at TL} (Tables 7.1-2 \& 3) & 0.0019 \text{ psia} \end{aligned}$$

$$K_e = \text{Vapor Space Expansion Factor} = \frac{(\Delta T_v / T_{La}) + (\Delta P_v - \Delta P_b) / (P_a - P_{va})}{1} = \underline{0.064558 \text{ dimensionless}}$$

$$K_s = \text{Vented Vapor Saturation Factor} = \frac{1}{1 + 0.053 \cdot P_{va} \cdot H_{vo}} = \underline{0.999164 \text{ dimensionless}}$$

Ls = Standing Storage Losses, lb/yr

$$L_s = 365 \cdot (V_v) \cdot (W_v) \cdot (K_e) \cdot (K_s)$$

$$\underline{L_s = 6.179 \text{ lb/yr}}$$

See AP-42, Section 7, for clarification of the following calculations:

$$\text{Lw} = \text{Working Losses} = 0.0010 * (\text{Mv}) * (\text{Pva}) * (\text{Q}) * (\text{Kn}) * (\text{Kp})$$

Q = annual net thruput, bbl/yr - (42 gal/bbl) =	56,659.3 bbl/yr
VLx = tank max liquid volume - (7.481 gal/cft)	11,228.4 cft
N = # of turnovers per year = $5.614 * \text{Q} / \text{VLx}$ =	28.3 dimensionless
Kn = turnover factor, =1 unless $N > 36$	1.0000 dimensionless
Kp = working loss product factor =	1.00 dimensionless

*** Kp = 0.75 for crude oils,
1.0 for all other products**

Lw = Working Losses, lb/yr

$$\text{Lw} = 0.0010 * (\text{Mv}) * (\text{Pva}) * (\text{Q}) * (\text{Kn}) * (\text{Kp})$$

$$\text{Lw} = 13.995 \text{ lb/yr}$$

The End

**Hammond Department of Environmental Management
Emission Inventory System Update (EIS)
Storage of Organic Liquids ... AP-42 ... Section 7**

Internal Float Roof Tank

General Information:

Company Name **ExxonMobil Oil Corporation**
Year of Data **2002**
Plant ID # 089-00233

Tank Information:

Tank ID # **East Ethanol Tank E1**
Tank Shell Diameter..... 10.6 feet
Tank Shell Height..... 48 feet
*Tank Shell Type (Welded or Riveted)..... Welded
*Tank Deck Type (Welded or Bolted)..... Welded
*Tank Rim Seal Type..... Double Wiper
Tank Capacity (max liquid)..... 30,000 gallons

Product Information: **

Product Stored..... **Ethyl Alcohol**
Vapor Molecular Weight..... 46.07 lb/lb-mole
True Vapor Pressure @ 60° F..... 0.5655 psia - @ 60° F
Average Organic Liquid Density..... 6.61 lb/gal
Annual Product Throughput..... 35,010,000 gallons/yr

*if this information changes, see calculations

if tank contains crude oil, see calculations

**This product information available in the AP-42, Section 7.

Lr =	Rim Seal Loss =	0.001	Tons/yr
Lwd =	Withdrawal Loss =	0.402	Tons/yr
Lf =	Deck Fitting Losses =	0.027	Tons/yr
Ld =	Deck Seam Loss =	0.000	Tons/yr

Lt = Lr + Lwd + Lf = Total Loss =	0.430	Tons/yr
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See AP-42, Section 7, for clarification of the following calculations:

* asterisked items change with rim seal information (see AP-42, Section 7)

Rim Seal Loss:

* Kr = seal factor (see Table 7.1-14) =	0.3 lb-mole/ft•yr
P* = vapor pres. function - Equation (3-3) =	0.009807 dimensionless
D = tank diameter =	10.6 feet
Mv = vapor molecular weight (Table 7.1-3)	46.07 lb/lb-mole
crude? Kc = product factor, Kc = 0.4 for crude oils,	1.0
Kc = 1 for all other organic liquids	

Lr = Rim Seal Loss = (Kr)*(P*)(D)*(Mv)*(Kc) = 1.437 lb/yr

Withdrawal Loss:

Q = annual throughput, (42 gal/bbl) =	833571 bbl/yr
WL = ave. organic liquid density (Table 7.1-3) =	6.61 lb/gal
D = tank diameter =	10.6 feet
Nc = number of columns =	1
C = shell clingage factor, (see Table 7.1-10) =	0.0015 bbl/1000 sqft
C = 0.006 for crude oil	

Lwd =

Withdrawal Loss = (0.943*Q*C*WL/D)(1+Nc/D) = 804.625 lb/yr

Summary of Internal Float Roof Tank Deck Fitting Loss Factors

for typical numbers based on tank diameter, see AP-42, Table 7.1-16
if tank-specific data is unavailable use Figures 7.1-24 and 25

Deck Fitting Type	Quantity	Factor	Total
Access Hatch:			
Bolted Cover, Gasketed.....	0	1.6	0
Unbolted Cover, Gasketed.....	0	11	0
Unbolted Cover, Ungasketed.....	1	25	25
Automatic Gauge Float Well:			
Bolted Cover, Gasketed.....	0	5.1	0
Unbolted Cover, Gasketed.....	0	15	0
Unbolted Cover, Ungasketed.....	1	28	28
Column Well:			
Builtup Column - Sliding cover, Gasketed.....	0	33	0
Builtup Column - Sliding Cover, Ungasketed.....	0	47	0

Pipe Column - Flexible Fabric Sleeve Seal.....	0	10	0
Pipe Column - Sliding Cover, Gasketed.....	0	19	0
Pipe Column - Sliding Cover, Ungasketed.....	0	32	0

Ladder Well:

Sliding Cover, Gasketed.....	0	56	0
Sliding Cover, Ungasketed.....	0	76	0

Roof Leg or Hanger Well:

Adjustable.....	7	7.9	55.3
Fixed.....	0	0	0

Sample Pipe or Well:

Slotted Pipe - Sliding Cover, Gasketed.....	0	44	0
Slotted Pipe - Sliding Cover, Ungasketed.....	0	57	0
Sample Well - Slit Fabric Seal, (10% open area)..	1	12	12
Stub Drain, 1" diameter.....	0	1.2	0

Vacuum Breaker:

Weighted Mechanical Actuation, Gasketed.....	1	0.7	0.7
Weighted Mechanical Actuation, Ungasketed.....	0	0.9	0

Total Deck Fitting Loss Factor (Ff) = 121

Deck Fitting Loss:

Ff = total deck fitting loss factor (Table 7.1-16) = 121 lb-mole/yr
(go to cell G47)

P*,Mv, and Kc as defined in above calculations

Lf = Deck Fitting Losses = (Ff)*(P*)*(Mv)*(Kc) = 54.668 lb/yr

Deck Seam Loss:

Kd = deck seam loss per unit seam length factor= 0.00 lb/mole/ft-yr

(0.0 for welded deck, 0.34 for bolted deck)

Sd = deck seam length factor = 0.2 ft/sqft

D,P*,Mv, and Kc are as defined above

Ld =

Deck Seam Loss = (Kd)*(Sd)*(D^2)*(P*)*(Mv)*(Kc)= 0.000 lb/yr

Tanks with welded decks do not have deck seam losses

The End

**Hammond Department of Environmental Management
Emission Inventory System Update (EIS)
Storage of Organic Liquids ... AP-42 ... Section 7**

Internal Float Roof Tank

General Information:

Company Name **ExxonMobil Oil Corporation**
Year of Data **2002**
Plant ID # 089-00233

Tank Information:

Tank ID # **West Ethanol Tank E2**
Tank Shell Diameter..... 10.6 feet
Tank Shell Height..... 48 feet
*Tank Shell Type (Welded or Riveted)..... Welded
*Tank Deck Type (Welded or Bolted)..... Welded
*Tank Rim Seal Type..... Double Wiper
Tank Capacity (max liquid)..... 30,000 gallons

Product Information: **

Product Stored..... **Ethyl Alcohol**
Vapor Molecular Weight..... 46.07 lb/lb-mole
True Vapor Pressure @ 60° F..... 0.5655 psia - @ 60° F
Average Organic Liquid Density..... 6.61 lb/gal
Annual Product Throughput..... 35,010,000 gallons/yr

*if this information changes, see calculations

if tank contains crude oil, see calculations

**This product information available in the AP-42, Section 7.

Lr =	Rim Seal Loss =	0.001	Tons/yr
Lwd =	Withdrawal Loss =	0.402	Tons/yr
Lf =	Deck Fitting Losses =	0.027	Tons/yr
Ld =	Deck Seam Loss =	0.000	Tons/yr

Lt = Lr + Lwd + Lf = Total Loss =	0.430	Tons/yr
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RH102598

See AP-42, Section 7, for clarification of the following calculations:

* asterisked items change with rim seal information (see AP-42, Section 7)

Rim Seal Loss:

* Kr = seal factor (see Table 7.1-14) =	0.3 lb-mole/ft•yr
P* = vapor pres. function - Equation (3-3) =	0.009807 dimensionless
D = tank diameter =	10.6 feet
Mv = vapor molecular weight (Table 7.1-3)	46.07 lb/lb-mole
crude? Kc = product factor, Kc = 0.4 for crude oils,	1.0
Kc = 1 for all other organic liquids	

Lr = Rim Seal Loss = (Kr)*(P*)(D)*(Mv)*(Kc) = 1.437 lb/yr

Withdrawal Loss:

Q = annual throughput, (42 gal/bbl) =	833571 bbl/yr
WL = ave. organic liquid density (Table 7.1-3) =	6.61 lb/gal
D = tank diameter =	10.6 feet
Nc = number of columns =	1
C = shell clingage factor, (see Table 7.1-10) =	0.0015 bbl/1000 sqft
C = 0.006 for crude oil	

Lwd =

Withdrawal Loss = (0.943*Q*C*WL/D)(1+Nc/D) = 804.625 lb/yr

Summary of Internal Float Roof Tank Deck Fitting Loss Factors

for typical numbers based on tank diameter, see AP-42, Table 7.1-16
if tank-specific data is unavailable use Figures 7.1-24 and 25

Deck Fitting Type	Quantity	Factor	Total
Access Hatch:			
Bolted Cover, Gasketed.....	0	1.6	0
Unbolted Cover, Gasketed.....	0	11	0
Unbolted Cover, Ungasketed.....	1	25	25
Automatic Gauge Float Well:			
Bolted Cover, Gasketed.....	0	5.1	0
Unbolted Cover, Gasketed.....	0	15	0
Unbolted Cover, Ungasketed.....	1	28	28
Column Well:			
Builtup Column - Sliding cover, Gasketed.....	0	33	0
Builtup Column - Sliding Cover, Ungasketed.....	0	47	0

Pipe Column - Flexible Fabric Sleeve Seal.....	0	10	0
Pipe Column - Sliding Cover, Gasketed.....	0	19	0
Pipe Column - Sliding Cover, Ungasketed.....	0	32	0

Ladder Well:

Sliding Cover, Gasketed.....	0	56	0
Sliding Cover, Ungasketed.....	0	76	0

Roof Leg or Hanger Well:

Adjustable.....	7	7.9	55.3
Fixed.....	0	0	0

Sample Pipe or Well:

Slotted Pipe - Sliding Cover, Gasketed.....	0	44	0
Slotted Pipe - Sliding Cover, Ungasketed.....	0	57	0
Sample Well - Slit Fabric Seal, (10% open area)..	1	12	12
Stub Drain, 1" diameter.....	0	1.2	0

Vacuum Breaker:

Weighted Mechanical Actuation, Gasketed.....	1	0.7	0.7
Weighted Mechanical Actuation, Ungasketed.....	0	0.9	0

Total Deck Fitting Loss Factor (Ff) = 121

Deck Fitting Loss:

Ff = total deck fitting loss factor (Table 7.1-16) = 121 lb-mole/yr
(go to cell G47)

P*,Mv, and Kc as defined in above calculations

Lf = Deck Fitting Losses = (Ff)*(P*)*(Mv)*(Kc) = 54.668 lb/yr

Deck Seam Loss:

Kd = deck seam loss per unit seam length factor= 0.00 lb/mole/ft-yr

(0.0 for welded deck, 0.34 for bolted deck)

Sd = deck seam length factor = 0.2 ft/sqft

D,P*,Mv, and Kc are as defined above

Ld =

Deck Seam Loss = (Kd)*(Sd)*(D^2)*(P*)*(Mv)*(Kc)= 0.000 lb/yr

Tanks with welded decks do not have deck seam losses

The End

**Hammond Department of Environmental Management
Emission Inventory System Update (EIS)
Storage of Organic Liquids ... AP-42 ... Section 7**

Fixed Roof - Horizontal

General Information:

Company Name **ExxonMobil Oil Corporation**
Year of Data **2002**
Plant ID # 089-00233

Tank Information:

Tank ID # **Generic Additive Tank A1**
Tank Shell Length..... 22 feet
Tank Shell Diameter..... 8 feet
Tank Capacity (max liquid)..... 8,000 gallons
if unknown, use $(\pi r^2) \times (\text{length}) \times (7.481)$

Product Information:

Product Stored.....	Additive	
*Vapor Molecular Weight.....	66	lb/lb-mole
*True Vapor Pressure @ 60° F.....	0.1	psia - @ 60° F
*True Vapor Pressure @ 40° F.....	0.1	psia - @ 40° F
Annual Product Throughput.....	81,600	gallons/yr

*This product information available in the AP-42, Section 7.

*if tank is not white, or if it contains crude oils - see calculations

Ls = Standing Storage Losses = 0.004 Tons/yr
Lw = Working Losses = 0.006 Tons/yr

Lt = Ls + Lw = Total Losses =	0.010	Tons/yr
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See AP-42, Section 7, for clarification of the following calculations:

$$L_s = \text{Standing Storage Losses} = 365 \cdot (V_v) \cdot (W_v) \cdot (K_e) \cdot (K_s)$$

L = length of tank =	22.00 feet
D = diameter of tank =	8.00 feet
* De = effective tank diam = $(L \cdot D / 0.785)^{0.5}$	14.97 feet
* Hvo = vapor space outage = $D / 2$ =	4.00 feet
* equivalent values for horizontal tanks (see Notes 1 and 2)	

$$V_v = \text{Tank Vapor Space Volume} = (\pi/4) \cdot (D_e^2) \cdot (H_{vo}) = \underline{704.36 \text{ cft}}$$

Mv = vapor molecular weight (Table 7.1-2 & 3)	66.0 lb/lb-mole
Pva = vapor pressure at TLa (Table 7.1-2 & 3)	0.1 psia @ 50-60°F
TLa = daily average liquid surface temperature °R as calculated for Chicago area using AP-42, 7.1-6	459.670 °R

$$W_v = \text{Vapor Density} = (M_v \cdot P_{va}) / (10.731 \cdot T_{La}) = \underline{0.0013380 \text{ lb/cft}}$$

ΔTa = daily ambient temp range (Chgo area) =	19.00 °R
∂ = tank paint solar absorptance (Table 7.1-7) =	0.17 dimensionless

***(this factor (∂) will change for non-white tanks)**

I = daily total solar insolation factor (Chgo) =	1215 Btu/sqft•day
ΔTv = daily vapor temp range =	
= $0.72 \cdot (\Delta T_a) + 0.028 \cdot (\partial) \cdot (I)$ =	19.4634 °R
TLa = daily average liquid surface temp °R	459.670 °R
ΔPv = daily vpr pres range = $P_{v@60} - P_{v@40}$ =	0 psia
ΔPb = breather vent pressure setting range =	0.32 psig
Pa = atmospheric pressure =	14.7 psia
Pva = vapor pressure at TLa (Table 7.1-2 & 3)	0.1 psia

$$K_e = \text{Vapor Space Expansion Factor} = \frac{(\Delta T_v / T_{La}) + (\Delta P_v - \Delta P_b) / (P_a - P_{va})}{1} = \underline{0.020424 \text{ dimensionless}}$$

$$K_s = \text{Vented Vapor Saturation Factor} = \frac{1}{1 + 0.053 \cdot P_{va} \cdot H_{vo}} = \underline{1.000000 \text{ dimensionless}}$$

Ls = Standing Storage Losses, lb/yr

$$L_s = 365 \cdot (V_v) \cdot (W_v) \cdot (K_e) \cdot (K_s)$$

$$L_s = \underline{7.026 \text{ lb/yr}}$$

See AP-42, Section 7, for clarification of the following calculations:

$$\text{Lw} = \text{Working Losses} = 0.0010 \cdot (\text{Mv}) \cdot (\text{Pva}) \cdot (\text{Q}) \cdot (\text{Kn}) \cdot (\text{Kp})$$

Q = annual net thruput, bbl/yr - (42 gal/bbl) =	1,942.9 bbl/yr
VLx = tank max liquid volume - (7.481 gal/cft)	1,069.4 cft
N = # of turnovers per year = $5.614 \cdot \text{Q} / \text{VLx}$ =	10.2 dimensionless
Kn = turnover factor, =1 unless $N > 36$	1.0000 dimensionless
Kp = working loss product factor =	1.00 dimensionless

*** Kp = 0.75 for crude oils,
1.0 for all other products**

Lw = Working Losses, lb/yr

$$\text{Lw} = 0.0010 \cdot (\text{Mv}) \cdot (\text{Pva}) \cdot (\text{Q}) \cdot (\text{Kn}) \cdot (\text{Kp})$$

$$\text{Lw} = 12.823 \text{ lb/yr}$$

The End

**Hammond Department of Environmental Management
Emission Inventory System Update (EIS)
Storage of Organic Liquids ... AP-42 ... Section 7**

Fixed Roof - Horizontal

General Information:

Company Name **ExxonMobil Oil Corporation**
Year of Data **2002**
Plant ID # 089-00233

Tank Information:

Tank ID # **Diesel Additive Tank A2**
Tank Shell Length..... 22 feet
Tank Shell Diameter..... 8 feet
Tank Capacity (max liquid)..... 8,000 gallons
if unknown, use $(\pi r^2) \times (\text{length}) \times (7.481)$

Product Information:

Product Stored.....	Additive	
*Vapor Molecular Weight.....	66	lb/lb-mole
*True Vapor Pressure @ 60° F.....	0.1	psia - @ 60° F
*True Vapor Pressure @ 40° F.....	0.1	psia - @ 40° F
Annual Product Throughput.....	81,600	gallons/yr

*This product information available in the AP-42, Section 7.

*if tank is not white, or if it contains crude oils - see calculations

Ls = Standing Storage Losses = 0.004 Tons/yr
Lw = Working Losses = 0.006 Tons/yr

Lt = Ls + Lw = Total Losses =	0.010	Tons/yr
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See AP-42, Section 7, for clarification of the following calculations:

$$L_s = \text{Standing Storage Losses} = 365 \cdot (V_v) \cdot (W_v) \cdot (K_e) \cdot (K_s)$$

L = length of tank =	22.00 feet
D = diameter of tank =	8.00 feet
* De = effective tank diam = $(L \cdot D / 0.785)^{0.5}$	14.97 feet
* Hvo = vapor space outage = $D / 2$ =	4.00 feet
* equivalent values for horizontal tanks (see Notes 1 and 2)	

$$V_v = \text{Tank Vapor Space Volume} = (\pi/4) \cdot (D_e^2) \cdot (H_{vo}) = \underline{704.36 \text{ cft}}$$

Mv = vapor molecular weight (Table 7.1-2 & 3)	66.0 lb/lb-mole
Pva = vapor pressure at TLa (Table 7.1-2 & 3)	0.1 psia @ 50-60°F
TLa = daily average liquid surface temperature °R as calculated for Chicago area using AP-42, 7.1-6	459.670 °R

$$W_v = \text{Vapor Density} = (M_v \cdot P_{va}) / (10.731 \cdot T_{La}) = \underline{0.0013380 \text{ lb/cft}}$$

ΔTa = daily ambient temp range (Chgo area) =	19.00 °R
∂ = tank paint solar absorptance (Table 7.1-7) =	0.17 dimensionless

***(this factor (∂) will change for non-white tanks)**

I = daily total solar insolation factor (Chgo) =	1215 Btu/sqft•day
ΔTv = daily vapor temp range =	
= $0.72 \cdot (\Delta T_a) + 0.028 \cdot (\partial) \cdot (I)$ =	19.4634 °R
TLa = daily average liquid surface temp °R	459.670 °R
ΔPv = daily vpr pres range = $P_{v@60} - P_{v@40}$ =	0 psia
ΔPb = breather vent pressure setting range =	0.32 psig
Pa = atmospheric pressure =	14.7 psia
Pva = vapor pressure at TLa (Table 7.1-2 & 3)	0.1 psia

$$K_e = \text{Vapor Space Expansion Factor} = \frac{(\Delta T_v / T_{La}) + (\Delta P_v - \Delta P_b) / (P_a - P_{va})}{1} = \underline{0.020424 \text{ dimensionless}}$$

$$K_s = \text{Vented Vapor Saturation Factor} = \frac{1}{1 + 0.053 \cdot P_{va} \cdot H_{vo}} = \underline{1.000000 \text{ dimensionless}}$$

Ls = Standing Storage Losses, lb/yr

$$L_s = 365 \cdot (V_v) \cdot (W_v) \cdot (K_e) \cdot (K_s)$$

$$L_s = \underline{7.026 \text{ lb/yr}}$$

See AP-42, Section 7, for clarification of the following calculations:

$$\text{Lw} = \text{Working Losses} = 0.0010 \cdot (\text{Mv}) \cdot (\text{Pva}) \cdot (\text{Q}) \cdot (\text{Kn}) \cdot (\text{Kp})$$

Q = annual net thruput, bbl/yr - (42 gal/bbl) =	1,942.9 bbl/yr
VLx = tank max liquid volume - (7.481 gal/cft)	1,069.4 cft
N = # of turnovers per year = $5.614 \cdot \text{Q} / \text{VLx}$ =	10.2 dimensionless
Kn = turnover factor, =1 unless $N > 36$	1.0000 dimensionless
Kp = working loss product factor =	1.00 dimensionless

*** Kp = 0.75 for crude oils,
1.0 for all other products**

Lw = Working Losses, lb/yr

$$\text{Lw} = 0.0010 \cdot (\text{Mv}) \cdot (\text{Pva}) \cdot (\text{Q}) \cdot (\text{Kn}) \cdot (\text{Kp})$$

$$\text{Lw} = 12.823 \text{ lb/yr}$$

The End

**Hammond Department of Environmental Management
Emission Inventory System Update (EIS)
Storage of Organic Liquids ... AP-42 ... Section 7**

Fixed Roof - Horizontal

General Information:

Company Name **ExxonMobil Oil Corporation**
Year of Data **2002**
Plant ID # 089-00233

Tank Information:

Tank ID # **Mobil Additive Tank A3**
Tank Shell Length..... 22 feet
Tank Shell Diameter..... 8 feet
Tank Capacity (max liquid)..... 8,000 gallons
if unknown, use $(\pi r^2) \times (\text{length}) \times (7.481)$

Product Information:

Product Stored.....	Additive	
*Vapor Molecular Weight.....	66	lb/lb-mole
*True Vapor Pressure @ 60° F.....	0.1	psia - @ 60° F
*True Vapor Pressure @ 40° F.....	0.1	psia - @ 40° F
Annual Product Throughput.....	81,600	gallons/yr

*This product information available in the AP-42, Section 7.

*if tank is not white, or if it contains crude oils - see calculations

Ls = Standing Storage Losses = 0.004 Tons/yr
Lw = Working Losses = 0.006 Tons/yr

Lt = Ls + Lw = Total Losses =	0.010	Tons/yr
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See AP-42, Section 7, for clarification of the following calculations:

$$L_s = \text{Standing Storage Losses} = 365 \cdot (V_v) \cdot (W_v) \cdot (K_e) \cdot (K_s)$$

L = length of tank =	22.00 feet
D = diameter of tank =	8.00 feet
* De = effective tank diam = $(L \cdot D / 0.785)^{0.5}$	14.97 feet
* Hvo = vapor space outage = $D / 2$ =	4.00 feet
* equivalent values for horizontal tanks (see Notes 1 and 2)	

$$V_v = \text{Tank Vapor Space Volume} = (\pi/4) \cdot (D_e^2) \cdot (H_{vo}) = \underline{704.36 \text{ cft}}$$

Mv = vapor molecular weight (Table 7.1-2 & 3)	66.0 lb/lb-mole
Pva = vapor pressure at TLa (Table 7.1-2 & 3)	0.1 psia @ 50-60°F
TLa = daily average liquid surface temperature °R as calculated for Chicago area using AP-42, 7.1-6	459.670 °R

$$W_v = \text{Vapor Density} = (M_v \cdot P_{va}) / (10.731 \cdot T_{La}) = \underline{0.0013380 \text{ lb/cft}}$$

ΔTa = daily ambient temp range (Chgo area) =	19.00 °R
∂ = tank paint solar absorptance (Table 7.1-7) =	0.17 dimensionless

***(this factor (∂) will change for non-white tanks)**

I = daily total solar insolation factor (Chgo) =	1215 Btu/sqft•day
ΔTv = daily vapor temp range =	
= $0.72 \cdot (\Delta T_a) + 0.028 \cdot (\partial) \cdot (I)$ =	19.4634 °R
TLa = daily average liquid surface temp °R	459.670 °R
ΔPv = daily vpr pres range = $P_{v@60} - P_{v@40}$ =	0 psia
ΔPb = breather vent pressure setting range =	0.32 psig
Pa = atmospheric pressure =	14.7 psia
Pva = vapor pressure at TLa (Table 7.1-2 & 3)	0.1 psia

$$K_e = \text{Vapor Space Expansion Factor} =$$

$$(\Delta T_v / T_{La}) + (\Delta P_v - \Delta P_b) / (P_a - P_{va}) = \underline{0.020424 \text{ dimensionless}}$$

$$K_s = \text{Vented Vapor Saturation Factor} =$$

$$1 / (1 + 0.053 \cdot P_{va} \cdot H_{vo}) = \underline{1.000000 \text{ dimensionless}}$$

$$L_s = \text{Standing Storage Losses, lb/yr}$$

$$L_s = 365 \cdot (V_v) \cdot (W_v) \cdot (K_e) \cdot (K_s)$$

$$L_s = \underline{7.026 \text{ lb/yr}}$$

See AP-42, Section 7, for clarification of the following calculations:

$$\text{Lw} = \text{Working Losses} = 0.0010 \cdot (Mv) \cdot (Pva) \cdot (Q) \cdot (Kn) \cdot (Kp)$$

Q = annual net thruput, bbl/yr - (42 gal/bbl) =	1,942.9 bbl/yr
VLx = tank max liquid volume - (7.481 gal/cft)	1,069.4 cft
N = # of turnovers per year = $5.614 \cdot Q / VLx$ =	10.2 dimensionless
Kn = turnover factor, =1 unless $N > 36$	1.0000 dimensionless
Kp = working loss product factor =	1.00 dimensionless

*** Kp = 0.75 for crude oils,
1.0 for all other products**

Lw = Working Losses, lb/yr

$$\text{Lw} = 0.0010 \cdot (Mv) \cdot (Pva) \cdot (Q) \cdot (Kn) \cdot (Kp)$$

$$\text{Lw} = 12.823 \text{ lb/yr}$$

The End

**Hammond Department of Environmental Management
Emission Inventory System Update (EIS)
Storage of Organic Liquids ... AP-42 ... Section 7**

Fixed Roof - Horizontal

General Information:

Company Name **ExxonMobil Oil Corporation**
Year of Data **2002**
Plant ID # 089-00233

Tank Information:

Tank ID # **Additive Tank A4**
Tank Shell Length..... 22 feet
Tank Shell Diameter..... 8 feet
Tank Capacity (max liquid)..... 8,000 gallons
if unknown, use $(\pi r^2) \times (\text{length}) \times (7.481)$

Product Information:

Product Stored.....	Additive	
*Vapor Molecular Weight.....	66	lb/lb-mole
*True Vapor Pressure @ 60° F.....	0.1	psia - @ 60° F
*True Vapor Pressure @ 40° F.....	0.1	psia - @ 40° F
Annual Product Throughput.....	81,600	gallons/yr

*This product information available in the AP-42, Section 7.

*if tank is not white, or if it contains crude oils - see calculations

Ls = Standing Storage Losses = 0.004 Tons/yr
Lw = Working Losses = 0.006 Tons/yr

Lt = Ls + Lw = Total Losses =	0.010	Tons/yr
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See AP-42, Section 7, for clarification of the following calculations:

$$L_s = \text{Standing Storage Losses} = 365 \cdot (V_v) \cdot (W_v) \cdot (K_e) \cdot (K_s)$$

L = length of tank =	22.00 feet
D = diameter of tank =	8.00 feet
* De = effective tank diam = $(L \cdot D / 0.785)^{0.5}$	14.97 feet
* Hvo = vapor space outage = $D / 2$	4.00 feet
* equivalent values for horizontal tanks (see Notes 1 and 2)	

$$V_v = \text{Tank Vapor Space Volume} = (\pi/4) \cdot (D_e^2) \cdot (H_{vo}) = \underline{704.36 \text{ cft}}$$

Mv = vapor molecular weight (Table 7.1-2 & 3)	66.0 lb/lb-mole
Pva = vapor pressure at TLa (Table 7.1-2 & 3)	0.1 psia @ 50-60°F
TLa = daily average liquid surface temperature °R as calculated for Chicago area using AP-42, 7.1-6	459.670 °R

$$W_v = \text{Vapor Density} = (M_v \cdot P_{va}) / (10.731 \cdot T_{La}) = \underline{0.0013380 \text{ lb/cft}}$$

ΔTa = daily ambient temp range (Chgo area) =	19.00 °R
∂ = tank paint solar absorptance (Table 7.1-7) =	0.17 dimensionless

***(this factor (∂) will change for non-white tanks)**

I = daily total solar insolation factor (Chgo) =	1215 Btu/sqft•day
ΔTv = daily vapor temp range =	
= $0.72 \cdot (\Delta T_a) + 0.028 \cdot (\partial) \cdot (I)$	19.4634 °R
TLa = daily average liquid surface temp °R	459.670 °R
ΔPv = daily vpr pres range = $P_{v@60} - P_{v@40}$	0 psia
ΔPb = breather vent pressure setting range =	0.32 psig
Pa = atmospheric pressure =	14.7 psia
Pva = vapor pressure at TLa (Table 7.1-2 & 3)	0.1 psia

$$K_e = \text{Vapor Space Expansion Factor} = \frac{(\Delta T_v / T_{La}) + (\Delta P_v - \Delta P_b) / (P_a - P_{va})}{1} = \underline{0.020424 \text{ dimensionless}}$$

$$K_s = \text{Vented Vapor Saturation Factor} = \frac{1}{1 + 0.053 \cdot P_{va} \cdot H_{vo}} = \underline{1.000000 \text{ dimensionless}}$$

Ls = Standing Storage Losses, lb/yr

$$L_s = 365 \cdot (V_v) \cdot (W_v) \cdot (K_e) \cdot (K_s)$$

$$L_s = \underline{7.026 \text{ lb/yr}}$$

See AP-42, Section 7, for clarification of the following calculations:

$$\text{Lw} = \text{Working Losses} = 0.0010 \cdot (Mv) \cdot (Pva) \cdot (Q) \cdot (Kn) \cdot (Kp)$$

Q = annual net thruput, bbl/yr - (42 gal/bbl) =	1,942.9 bbl/yr
VLx = tank max liquid volume - (7.481 gal/cft)	1,069.4 cft
N = # of turnovers per year = $5.614 \cdot Q / VLx$ =	10.2 dimensionless
Kn = turnover factor, =1 unless $N > 36$	1.0000 dimensionless
Kp = working loss product factor =	1.00 dimensionless

*** Kp = 0.75 for crude oils,
1.0 for all other products**

Lw = Working Losses, lb/yr

$$\text{Lw} = 0.0010 \cdot (Mv) \cdot (Pva) \cdot (Q) \cdot (Kn) \cdot (Kp)$$

$$\text{Lw} = 12.823 \text{ lb/yr}$$

The End

**Hammond Department of Environmental Management
Emission Inventory System Update (EIS)
Storage of Organic Liquids ... AP-42 ... Section 7**

Fixed Roof - Horizontal

General Information:

Company Name **ExxonMobil Oil Corporation**
Year of Data **2002**
Plant ID # 089-00233

Tank Information:

Tank ID # **Own Use Diesel Tank A6**
Tank Shell Length..... 16 feet
Tank Shell Diameter..... 8 feet
Tank Capacity (max liquid)..... 6,000 gallons
if unknown, use $(\pi r^2) \times (\text{length}) \times (7.481)$

Product Information:

Product Stored.....	Additive	
*Vapor Molecular Weight.....	66	lb/lb-mole
*True Vapor Pressure @ 60° F.....	0.1	psia - @ 60° F
*True Vapor Pressure @ 40° F.....	0.1	psia - @ 40° F
Annual Product Throughput.....	60,000	gallons/yr

*This product information available in the AP-42, Section 7.

*if tank is not white, or if it contains crude oils - see calculations

Ls = Standing Storage Losses = 0.003 Tons/yr
Lw = Working Losses = 0.005 Tons/yr

Lt = Ls + Lw = Total Losses =	0.007	Tons/yr
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See AP-42, Section 7, for clarification of the following calculations:

$$L_s = \text{Standing Storage Losses} = 365 \cdot (V_v) \cdot (W_v) \cdot (K_e) \cdot (K_s)$$

L = length of tank =	16.00 feet
D = diameter of tank =	8.00 feet
* De = effective tank diam = $(L \cdot D / 0.785)^{0.5}$	12.77 feet
* Hvo = vapor space outage = $D / 2$ =	4.00 feet
* equivalent values for horizontal tanks (see Notes 1 and 2)	

$$V_v = \text{Tank Vapor Space Volume} = (\pi/4) \cdot (D_e^2) \cdot (H_{vo}) = \underline{512.26 \text{ cft}}$$

Mv = vapor molecular weight (Table 7.1-2 & 3)	66.0 lb/lb-mole
Pva = vapor pressure at TLa (Table 7.1-2 & 3)	0.1 psia @ 50-60°F
TLa = daily average liquid surface temperature °R as calculated for Chicago area using AP-42, 7.1-6	459.670 °R

$$W_v = \text{Vapor Density} = (M_v \cdot P_{va}) / (10.731 \cdot T_{La}) = \underline{0.0013380 \text{ lb/cft}}$$

ΔTa = daily ambient temp range (Chgo area) =	19.00 °R
∂ = tank paint solar absorptance (Table 7.1-7) =	0.17 dimensionless

***(this factor (∂) will change for non-white tanks)**

I = daily total solar insolation factor (Chgo) =	1215 Btu/sqft•day
ΔTv = daily vapor temp range =	
= $0.72 \cdot (\Delta T_a) + 0.028 \cdot (\partial) \cdot (I)$ =	19.4634 °R
TLa = daily average liquid surface temp °R	459.670 °R
ΔPv = daily vpr pres range = $P_{v@60} - P_{v@40}$ =	0 psia
ΔPb = breather vent pressure setting range =	0.32 psig
Pa = atmospheric pressure =	14.7 psia
Pva = vapor pressure at TLa (Table 7.1-2 & 3)	0.1 psia

$$K_e = \text{Vapor Space Expansion Factor} = \frac{(\Delta T_v / T_{La}) + (\Delta P_v - \Delta P_b) / (P_a - P_{va})}{1} = \underline{0.020424 \text{ dimensionless}}$$

$$K_s = \text{Vented Vapor Saturation Factor} = \frac{1}{1 + 0.053 \cdot P_{va} \cdot H_{vo}} = \underline{1.000000 \text{ dimensionless}}$$

Ls = Standing Storage Losses, lb/yr

$$L_s = 365 \cdot (V_v) \cdot (W_v) \cdot (K_e) \cdot (K_s)$$

$$L_s = \underline{5.110 \text{ lb/yr}}$$

See AP-42, Section 7, for clarification of the following calculations:

$$\text{Lw} = \text{Working Losses} = 0.0010 \cdot (Mv) \cdot (Pva) \cdot (Q) \cdot (Kn) \cdot (Kp)$$

Q = annual net thruput, bbl/yr - (42 gal/bbl) =	1,428.6 bbl/yr
VLx = tank max liquid volume - (7.481 gal/cft)	802.0 cft
N = # of turnovers per year = $5.614 \cdot Q / VLx$ =	10.0 dimensionless
Kn = turnover factor, =1 unless $N > 36$	1.0000 dimensionless
Kp = working loss product factor =	1.00 dimensionless

*** Kp = 0.75 for crude oils,
1.0 for all other products**

Lw = Working Losses, lb/yr

$$\text{Lw} = 0.0010 \cdot (Mv) \cdot (Pva) \cdot (Q) \cdot (Kn) \cdot (Kp)$$

Lw = 9.429 lb/yr

The End

**Hammond Department of Environmental Management
Emission Inventory System Update (EIS)
Storage of Organic Liquids ... AP-42 ... Section 7**

Fixed Roof - Horizontal

General Information:

Company Name **ExxonMobil Oil Corporation**
Year of Data **2002**
Plant ID # 089-00233

Tank Information:

Tank ID # **Non-Taxable Red Dye Diesel Tank A5**
Tank Shell Length..... 5 feet
Tank Shell Diameter..... 3 feet
Tank Capacity (max liquid)..... 250 gallons
if unknown, use $(\pi r^2) \times (\text{length}) \times (7.481)$

Product Information:

Product Stored.....	Additive	
*Vapor Molecular Weight.....	66	lb/lb-mole
*True Vapor Pressure @ 60° F.....	0.1	psia - @ 60° F
*True Vapor Pressure @ 40° F.....	0.1	psia - @ 40° F
Annual Product Throughput.....	5,250	gallons/yr

*This product information available in the AP-42, Section 7.

*if tank is not white, or if it contains crude oils - see calculations

Ls = Standing Storage Losses = 0.000 Tons/yr
Lw = Working Losses = 0.000 Tons/yr

Lt = Ls + Lw = Total Losses =	0.001	Tons/yr
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See AP-42, Section 7, for clarification of the following calculations:

$$L_s = \text{Standing Storage Losses} = 365 \cdot (V_v) \cdot (W_v) \cdot (K_e) \cdot (K_s)$$

L = length of tank =	5.00 feet
D = diameter of tank =	3.00 feet
* De = effective tank diam = $(L \cdot D / 0.785)^{0.5}$	4.37 feet
* Hvo = vapor space outage = $D / 2$ =	1.50 feet
* equivalent values for horizontal tanks (see Notes 1 and 2)	

$$V_v = \text{Tank Vapor Space Volume} = (\pi/4) \cdot (D_e^2) \cdot (H_{vo}) = \underline{22.51 \text{ cft}}$$

Mv = vapor molecular weight (Table 7.1-2 & 3)	66.0 lb/lb-mole
Pva = vapor pressure at TLa (Table 7.1-2 & 3)	0.1 psia @ 50-60°F
TLa = daily average liquid surface temperature °R as calculated for Chicago area using AP-42, 7.1-6	459.670 °R

$$W_v = \text{Vapor Density} = (M_v \cdot P_{va}) / (10.731 \cdot T_{La}) = \underline{0.0013380 \text{ lb/cft}}$$

ΔTa = daily ambient temp range (Chgo area) =	19.00 °R
∂ = tank paint solar absorptance (Table 7.1-7) =	0.17 dimensionless

***(this factor (∂) will change for non-white tanks)**

I = daily total solar insolation factor (Chgo) =	1215 Btu/sqft•day
ΔTv = daily vapor temp range =	
= $0.72 \cdot (\Delta T_a) + 0.028 \cdot (\partial) \cdot (I)$ =	19.4634 °R
TLa = daily average liquid surface temp °R	459.670 °R
ΔPv = daily vpr pres range = $P_{v@60} - P_{v@40}$ =	0 psia
ΔPb = breather vent pressure setting range =	0.32 psig
Pa = atmospheric pressure =	14.7 psia
Pva = vapor pressure at TLa (Table 7.1-2 & 3)	0.1 psia

$$K_e = \text{Vapor Space Expansion Factor} = \frac{(\Delta T_v / T_{La}) + (\Delta P_v - \Delta P_b) / (P_a - P_{va})}{1} = \underline{0.020424 \text{ dimensionless}}$$

$$K_s = \text{Vented Vapor Saturation Factor} = \frac{1}{1 + 0.053 \cdot P_{va} \cdot H_{vo}} = \underline{1.000000 \text{ dimensionless}}$$

Ls = Standing Storage Losses, lb/yr

$$L_s = 365 \cdot (V_v) \cdot (W_v) \cdot (K_e) \cdot (K_s)$$

$$L_s = \underline{0.225 \text{ lb/yr}}$$

See AP-42, Section 7, for clarification of the following calculations:

$$\text{Lw} = \text{Working Losses} = 0.0010 \cdot (M_v) \cdot (P_{va}) \cdot (Q) \cdot (K_n) \cdot (K_p)$$

Q = annual net thruput, bbl/yr - (42 gal/bbl) =	125.0 bbl/yr
VLx = tank max liquid volume - (7.481 gal/cft)	33.4 cft
N = # of turnovers per year = $5.614 \cdot Q / VLx$ =	21.0 dimensionless
Kn = turnover factor, =1 unless $N > 36$	1.0000 dimensionless
Kp = working loss product factor =	1.00 dimensionless

*** Kp = 0.75 for crude oils,
1.0 for all other products**

Lw = Working Losses, lb/yr

$$\text{Lw} = 0.0010 \cdot (M_v) \cdot (P_{va}) \cdot (Q) \cdot (K_n) \cdot (K_p)$$

$$\text{Lw} = \quad 0.825 \quad \text{lb/yr}$$

The End

**Hammond Department of Environmental Management
Emission Inventory System Update (EIS)
Storage of Organic Liquids ... AP-42 ... Section 7**

Fixed Roof - Horizontal

General Information:

Company Name **ExxonMobil Oil Corporation**
Year of Data **2002**
Plant ID # 089-00233

Tank Information:

Tank ID # **Heating Oil Tank 01**
Tank Shell Length..... 7 feet
Tank Shell Diameter..... 4 feet
Tank Capacity (max liquid)..... 1,000 gallons
if unknown, use $(\pi r^2) \times (\text{length}) \times (7.481)$

Product Information:

Product Stored..... **No. 2 Fuel Oil**
*Vapor Molecular Weight..... 130 lb/lb-mole
*True Vapor Pressure @ 60° F..... 0.0065 psia - @ 60° F
*True Vapor Pressure @ 40° F..... 0.0045 psia - @ 40° F
Annual Product Throughput..... 5,100 gallons/yr

*This product information available in the AP-42, Section 7.
*if tank is not white, or if it contains crude oils - see calculations

Ls = Standing Storage Losses = 0.000 Tons/yr
Lw = Working Losses = 0.000 Tons/yr

Lt = Ls + Lw = Total Losses =	0.000	Tons/yr
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See AP-42, Section 7, for clarification of the following calculations:

Ls = Standing Storage Losses, lb/yr

Ls = 0 (for underground storage tanks)

Ls = 0.000 lb/yr

See AP-42, Section 7, for clarification of the following calculations:

Lw = Working Losses = $0.0010 \cdot (Mv) \cdot (Pva) \cdot (Q) \cdot (Kn) \cdot (Kp)$

Q = annual net thruput, bbl/yr - (42 gal/bbl) =	121.4 bbl/yr
VLx = tank max liquid volume - (7.481 gal/cft)	133.7 cft
N = # of turnovers per year = $5.614 \cdot Q / VLx$ =	5.1 dimensionless
Kn = turnover factor, =1 unless N>36	1.0000 dimensionless
Kp = working loss product factor =	1.00 dimensionless

*** Kp = 0.75 for crude oils,
1.0 for all other products**

Lw = Working Losses, lb/yr

Lw = $0.0010 \cdot (Mv) \cdot (Pva) \cdot (Q) \cdot (Kn) \cdot (Kp)$

Lw = 0.103 lb/yr

The End

**Hammond Department of Environmental Management
Emission Inventory System Update (EIS)
Storage of Organic Liquids ... AP-42 ... Section 7**

Fixed Roof - Horizontal

General Information:

Company Name **ExxonMobil Oil Corporation**
Year of Data **2002**
Plant ID # 089-00233

Tank Information:

Tank ID # **Heating Oil Tank G1**
Tank Shell Length..... 7 feet
Tank Shell Diameter..... 4 feet
Tank Capacity (max liquid)..... 1,000 gallons
if unknown, use $(\pi r^2) \times (\text{length}) \times (7.481)$

Product Information:

Product Stored..... **No. 2 Fuel Oil**
*Vapor Molecular Weight..... 130 lb/lb-mole
*True Vapor Pressure @ 60° F..... 0.0065 psia - @ 60° F
*True Vapor Pressure @ 40° F..... 0.0045 psia - @ 40° F
Annual Product Throughput..... 5,100 gallons/yr

*This product information available in the AP-42, Section 7.
*if tank is not white, or if it contains crude oils - see calculations

Ls = Standing Storage Losses = 0.000 Tons/yr
Lw = Working Losses = 0.000 Tons/yr

Lt = Ls + Lw = Total Losses =	0.000	Tons/yr
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See AP-42, Section 7, for clarification of the following calculations:

Ls = Standing Storage Losses, lb/yr

Ls = 0 (for underground storage tanks)

Ls = 0.000 lb/yr

See AP-42, Section 7, for clarification of the following calculations:

Lw = Working Losses = $0.0010 \cdot (Mv) \cdot (Pva) \cdot (Q) \cdot (Kn) \cdot (Kp)$

Q = annual net thruput, bbl/yr - (42 gal/bbl) =	121.4 bbl/yr
VLx = tank max liquid volume - (7.481 gal/cft)	133.7 cft
N = # of turnovers per year = $5.614 \cdot Q / VLx$ =	5.1 dimensionless
Kn = turnover factor, =1 unless N>36	1.0000 dimensionless
Kp = working loss product factor =	1.00 dimensionless

*** Kp = 0.75 for crude oils,
1.0 for all other products**

Lw = Working Losses, lb/yr

Lw = $0.0010 \cdot (Mv) \cdot (Pva) \cdot (Q) \cdot (Kn) \cdot (Kp)$

Lw = 0.103 lb/yr

The End

**Hammond Department of Environmental Management
Emission Inventory System Update (EIS)
Storage of Organic Liquids ... AP-42 ... Section 7**

Fixed Roof - Horizontal

General Information:

Company Name **ExxonMobil Oil Corporation**
Year of Data **2002**
Plant ID # 089-00233

Tank Information:

Tank ID # **Heating Oil Tank G2**
Tank Shell Length..... 7 feet
Tank Shell Diameter..... 4 feet
Tank Capacity (max liquid)..... 1,000 gallons
if unknown, use $(\pi r^2) \times (\text{length}) \times (7.481)$

Product Information:

Product Stored..... **No. 2 Fuel Oil**
*Vapor Molecular Weight..... 130 lb/lb-mole
*True Vapor Pressure @ 60° F..... 0.0065 psia - @ 60° F
*True Vapor Pressure @ 40° F..... 0.0045 psia - @ 40° F
Annual Product Throughput..... 5,100 gallons/yr

*This product information available in the AP-42, Section 7.
*if tank is not white, or if it contains crude oils - see calculations

Ls = Standing Storage Losses = 0.000 Tons/yr
Lw = Working Losses = 0.000 Tons/yr

Lt = Ls + Lw = Total Losses =	0.000	Tons/yr
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See AP-42, Section 7, for clarification of the following calculations:

Ls = Standing Storage Losses, lb/yr

Ls = 0 (for underground storage tanks)

Ls = 0.000 lb/yr

See AP-42, Section 7, for clarification of the following calculations:

Lw = Working Losses = $0.0010 \cdot (Mv) \cdot (Pva) \cdot (Q) \cdot (Kn) \cdot (Kp)$

Q = annual net thruput, bbl/yr - (42 gal/bbl) =	121.4 bbl/yr
VLx = tank max liquid volume - (7.481 gal/cft)	133.7 cft
N = # of turnovers per year = $5.614 \cdot Q / VLx$ =	5.1 dimensionless
Kn = turnover factor, =1 unless N>36	1.0000 dimensionless
Kp = working loss product factor =	1.00 dimensionless

*** Kp = 0.75 for crude oils,
1.0 for all other products**

Lw = Working Losses, lb/yr

Lw = $0.0010 \cdot (Mv) \cdot (Pva) \cdot (Q) \cdot (Kn) \cdot (Kp)$

Lw = 0.103 lb/yr

The End

**Hammond Department of Environmental Management
Emission Inventory System Update (EIS)
Storage of Organic Liquids ... AP-42 ... Section 7**

Fixed Roof - Horizontal

General Information:

Company Name **ExxonMobil Oil Corporation**
Year of Data **2002**
Plant ID # 089-00233

Tank Information:

Tank ID # **Emergency Overfill Tank B3**
Tank Shell Length..... 7 feet
Tank Shell Diameter..... 4 feet
Tank Capacity (max liquid)..... 1,000 gallons
if unknown, use $(\pi r^2) \times (\text{length}) \times (7.481)$

Product Information:

Product Stored..... **Transmix**
*Vapor Molecular Weight..... 80 lb/lb-mole
*True Vapor Pressure @ 60° F..... 0.39 psia - @ 60° F
*True Vapor Pressure @ 40° F..... 0.3 psia - @ 40° F
Annual Product Throughput..... 30,000 gallons/yr

*This product information available in the AP-42, Section 7.
*if tank is not white, or if it contains crude oils - see calculations

Ls = Standing Storage Losses = 0.000 Tons/yr
Lw = Working Losses = 0.011 Tons/yr

Lt = Ls + Lw = Total Losses =	0.011	Tons/yr
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See AP-42, Section 7, for clarification of the following calculations:

Ls = Standing Storage Losses, lb/yr

Ls = 0 (for underground storage tanks)

Ls = 0.000 lb/yr

See AP-42, Section 7, for clarification of the following calculations:

Lw = Working Losses = $0.0010 \cdot (Mv) \cdot (Pva) \cdot (Q) \cdot (Kn) \cdot (Kp)$

Q = annual net thruput, bbl/yr - (42 gal/bbl) =	714.3 bbl/yr
VLx = tank max liquid volume - (7.481 gal/cft)	133.7 cft
N = # of turnovers per year = $5.614 \cdot Q / VLx$ =	30.0 dimensionless
Kn = turnover factor, =1 unless N>36	1.0000 dimensionless
Kp = working loss product factor =	1.00 dimensionless

*** Kp = 0.75 for crude oils,
1.0 for all other products**

Lw = Working Losses, lb/yr

Lw = $0.0010 \cdot (Mv) \cdot (Pva) \cdot (Q) \cdot (Kn) \cdot (Kp)$

Lw = 22.286 lb/yr

The End

**Hammond Department of Environmental Management
Emission Inventory System Update (EIS)
Storage of Organic Liquids ... AP-42 ... Section 7**

Fixed Roof - Horizontal

General Information:

Company Name **ExxonMobil Oil Corporation**
Year of Data **2002**
Plant ID # 089-00233

Tank Information:

Tank ID # **Emergency Overfill Tank B2**
Tank Shell Length..... 17 feet
Tank Shell Diameter..... 8 feet
Tank Capacity (max liquid)..... 6,000 gallons
if unknown, use $(\pi r^2) \times (\text{length}) \times (7.481)$

Product Information:

Product Stored..... **Transmix**
*Vapor Molecular Weight..... 80 lb/lb-mole
*True Vapor Pressure @ 60° F..... 0.39 psia - @ 60° F
*True Vapor Pressure @ 40° F..... 0.3 psia - @ 40° F
Annual Product Throughput..... 180,000 gallons/yr

*This product information available in the AP-42, Section 7.
*if tank is not white, or if it contains crude oils - see calculations

Ls = Standing Storage Losses = 0.000 Tons/yr
Lw = Working Losses = 0.067 Tons/yr

Lt = Ls + Lw = Total Losses =	0.067	Tons/yr
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See AP-42, Section 7, for clarification of the following calculations:

Ls = Standing Storage Losses, lb/yr

Ls = 0 (for underground storage tanks)

Ls = 0.000 lb/yr

See AP-42, Section 7, for clarification of the following calculations:

Lw = Working Losses = $0.0010 \cdot (Mv) \cdot (Pva) \cdot (Q) \cdot (Kn) \cdot (Kp)$

Q = annual net thruput, bbl/yr - (42 gal/bbl) =	4,285.7 bbl/yr
VLx = tank max liquid volume - (7.481 gal/cft)	802.0 cft
N = # of turnovers per year = $5.614 \cdot Q / VLx$ =	30.0 dimensionless
Kn = turnover factor, =1 unless N>36	1.0000 dimensionless
Kp = working loss product factor =	1.00 dimensionless

*** Kp = 0.75 for crude oils,
1.0 for all other products**

Lw = Working Losses, lb/yr

Lw = $0.0010 \cdot (Mv) \cdot (Pva) \cdot (Q) \cdot (Kn) \cdot (Kp)$

Lw = 133.714 lb/yr

The End

**Hammond Department of Environmental Management
Emission Inventory System Update (EIS)
Storage of Organic Liquids ... AP-42 ... Section 7**

Fixed Roof - Horizontal

General Information:

Company Name **ExxonMobil Oil Corporation**
Year of Data **2002**
Plant ID # 089-00233

Tank Information:

Tank ID # **Emergency Overfill Tank B1**
Tank Shell Length..... 28 feet
Tank Shell Diameter..... 8 feet
Tank Capacity (max liquid)..... 10,000 gallons
if unknown, use $(\pi r^2) \times (\text{length}) \times (7.481)$

Product Information:

Product Stored..... **Transmix**
*Vapor Molecular Weight..... 80 lb/lb-mole
*True Vapor Pressure @ 60° F..... 0.39 psia - @ 60° F
*True Vapor Pressure @ 40° F..... 0.3 psia - @ 40° F
Annual Product Throughput..... 300,000 gallons/yr

*This product information available in the AP-42, Section 7.
*if tank is not white, or if it contains crude oils - see calculations

Ls = Standing Storage Losses = 0.000 Tons/yr
Lw = Working Losses = 0.111 Tons/yr

Lt = Ls + Lw = Total Losses =	0.111	Tons/yr
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See AP-42, Section 7, for clarification of the following calculations:

Ls = Standing Storage Losses, lb/yr

Ls = 0 (for underground storage tanks)

Ls = 0.000 lb/yr

See AP-42, Section 7, for clarification of the following calculations:

Lw = Working Losses = $0.0010 \cdot (Mv) \cdot (Pva) \cdot (Q) \cdot (Kn) \cdot (Kp)$

Q = annual net thruput, bbl/yr - (42 gal/bbl) =	7,142.9 bbl/yr
VLx = tank max liquid volume - (7.481 gal/cft)	1,336.7 cft
N = # of turnovers per year = $5.614 \cdot Q / VLx$ =	30.0 dimensionless
Kn = turnover factor, =1 unless N>36	1.0000 dimensionless
Kp = working loss product factor =	1.00 dimensionless

*** Kp = 0.75 for crude oils,
1.0 for all other products**

Lw = Working Losses, lb/yr

Lw = $0.0010 \cdot (Mv) \cdot (Pva) \cdot (Q) \cdot (Kn) \cdot (Kp)$

Lw = 222.857 lb/yr

The End